
From: Droggitis, Spiros
Sent: Friday, March 18, 2011 9:24 PM
To: LIA12 Hoc
Subject: Re: RESPONSE - USNRC Earthquake-Tsunami Update - 1800 EDT (March 18, 2011)

Who is this? I'll be in at 7.

From: LIA12 Hoc
To: Droggitis, Spiros
Cc: LIA08 Hoc
Sent: Fri Mar 18 21:20:37 2011
Subject: FW: RESPONSE - USNRC Earthquake-Tsunami Update - 1800 EDT (March 18, 2011)

Spiros,
When you come in tomorrow, there's a request that we (OCA) work on a daily briefing slide that would be put in the hands of staffers before/concurrent to the daily conference call. Attached is my rough draft.
Please feel free to call in the AM.

From: Weber, Michael
Sent: Friday, March 18, 2011 6:58 PM
To: LIA07 Hoc
Cc: OST02 HOC; Virgilio, Martin; Schmidt, Rebecca; Powell, Amy; Thaggard, Mark
Subject: RESPONSE - USNRC Earthquake-Tsunami Update - 1800 EDT (March 18, 2011)

Thanks. Thinking about the level of detail that might be appropriate for a daily one-page summary of current status for Congress, you might consider something like the following:

USNRC Emergency Response Update

March 18, 2011

Earthquake / Tsunami Response
Compiled by Liaison Team

NRC's Top Response Priorities

- 1) Assessment of radiological conditions, dose projections, and protective action recommendations to protect U.S. citizens in Japan.
- 2) Providing technical assistance to the Government of Japan to control nuclear power plants at Fukushima-Daiichi.
- 3) Coordination with other U.S. Departments and Agencies, the Institute of Nuclear Power Operations (INPO), Bechtel, General Electric Hitachi (GEH), Tokyo Electric Power Company (TEPCO), and the Japanese military.

Status

The status of the nuclear power reactors and spent fuel pools remains essentially unchanged since March 16, 2011, although some progress is being made in restoring cooling,

Protective action recommendations of evacuation of U.S. citizens within 50 miles of the Fukushima-Daiichi site remain adequate

NRC is cooperating with DOE, EPA, NOAA, and other agencies in conducting radioactive plume modeling and assessing radioactive contamination within Japan.

A total of 11 (12) NRC experts are working in Japan supporting USAID response efforts with the US Ambassador and his staff.

NRC is providing technical assistance to the Government of Japan on alternative strategies to restore and maintain cooling of the reactors and spent fuel pools in collaboration with DOE, DOD, DOS, and private sector entities.

NRC has issued numerous press releases related to the earthquake and tsunami. These press releases can be found online at: <http://www.nrc.gov/reading-rm/doc-collections/news/2011/>

Congressional staff is encouraged to participate in the daily status conference call hosted by the NRC at 1400 each day; contact the NRC Liaison Team at 301-816-5100 for access information.

From: LIA07 Hoc

Sent: Friday, March 18, 2011 6:37 PM

Subject: USNRC Earthquake-Tsunami Update - 1800 EDT (March 18, 2011)

Attached, please find an 1800 EDT March 18, 2011 status update from the US Nuclear Regulatory Commission's Emergency Operations Center regarding the impacts of the earthquake/tsunami.

Please note that this information is "Official Use Only" and is only being shared within the federal family.

Please call the Headquarters Operations Officer at 301-816-5100 with questions.

-Sara

Sara K. Mroz

Communications and Outreach

Office of Nuclear Security and Incident Response

US Nuclear Regulatory Commission

Sara.Mroz@nrc.gov

LIA07.HOC@nrc.gov (Operations Center)

Fukushima Daiichi Status	
Unit 1	Core: Damaged Cooling: Sea water injected Primary Containment: Functional Secondary Containment: Lost Spent Fuel Pool: Unknown
Unit 2	Core: Damaged Cooling: Sea water injected Primary Containment: Possible torus damage Secondary Containment: Lost Spent Fuel Pool: Low water
Unit 3	Core: Damaged Cooling: RCS depressurized; radiation released Primary Containment: Some Damage Secondary Containment: Lost Spent Fuel Pool: Low water
Unit 4	Core: Damaged Cooling: Sea water injected Primary Containment: Some Damage Secondary Containment: Lost Spent Fuel Pool: Low water
Unit 5	Core: Damaged Cooling: Sea water injected Primary Containment: Some Damage Secondary Containment: Lost Spent Fuel Pool: Low water
Unit 6	Core: Damaged Cooling: Sea water injected Primary Containment: Some Damage Secondary Containment: Lost Spent Fuel Pool: Low water
Common Spent Fuel Pool	Quantity Fuel Rods Electrical Power: Restoration of electrical power to pumps in progress

NRC has issued numerous press releases related to the earthquake and tsunami. These press releases can be found online at: <http://www.nrc.gov/reading-rm/doc-collections/news/2011/>

Congressional staff is encouraged to participate in the daily status conference call hosted by the NRC at 1400 each day; contact the NRC Liaison Team at 301-816-5100 for access information

USNRC Emergency Operations Center Status Update

March 18, 2011
Earthquake / Tsunami Status Update
Compiled by Executive Briefing Team

This report was changed to include NRC's current understanding of the ongoing situation in Japan. Historical and background information can be found in past reports.

NRC's Top Priorities

- 1) Continued assessment of radiological conditions, dose projections, and protective action recommendations.
 - 2) Providing technical assistance to the Government of Japan.
 - 3) Coordination with other U.S. Departments and Agencies, the Institute of Nuclear Power Operations(INPO), Bechtel, General Electric Hitachi (GEH), Tokyo Electric Power Company (TEPCO), and the Japanese military.
-

Status

At 0946 EST, March 11, 2011, the NRC entered Monitoring Mode and the agency continues to monitor the unfolding events in Japan. The Headquarters Operations Center is staffed 24/7.

A total of 11 NRC experts supporting USAID response efforts from the NRC are in Japan and have engaged with the US Ambassador and his staff.

NRC has issued numerous press releases related to the earthquake and tsunami. These press releases can be found online at: <http://www.nrc.gov/reading-rm/doc-collections/news/2011/>

At 0550 EDT, March 14, 2011, the NRC experts in Japan reported that the Japanese have requested US technical assistance with cooling the Fukushima Daiichi Units, as needed. The effort is being coordinated by the US Ambassador. At 0900 EDT, March 15, 2011, the Japanese government accepted DOE's Radiological Assistance Program (RAP) team assistance, which includes Aerial Measuring System (AMS) flyovers.

On March 16, NRC provided the White House with information on protective measures for NRC staff in Japan and information to provide advice for other federal workers in Japan. The current protective action recommendation for U.S. citizens residing within 50 miles (80 km) of the Fukushima Daiichi site is to evacuate.

DDDD/2

Earthquake/Tsunami Status Update March 18, 2011

1800 EDT

The US State Department has approved voluntary authorized departure of family members at the U.S. Embassy in Tokyo, the U.S. Consulate in Nagoya and the Foreign Service Institute in Yokohama.

Japanese Ministry of Defense appears to be taking on a larger role in the response effort.

The U.S. Department of Energy and the U.S. Environmental Protection Agency are the Federal communicators on questions regarding possible domestic impacts from the events in Japan and on domestic monitoring.

Status of NRC Licensee and Agreement State Facilities

NRC is discontinuing reporting status of NRC licensee and Agreement State facilities. NRC will resume this reporting should any issues arise related to earthquake or tsunami effects. NRC is currently working on a generic communication for distribution to the U.S. nuclear power reactor fleet.

The Institute of Nuclear Power Operations (INPO) issued a Level 1 Event Report (highest level) to its members on the afternoon of March 15, 2011. It identifies 4 actions, with due dates, and requires a written response. In general, the actions include walkdowns and verifications of aspects of facility capabilities to address B.5.b equipment and procedures, Severe Accident Management Guidelines (SAMGs), mitigation of station blackout (SBO) conditions, mitigation of internal and external flooding, and fire and flooding events that could be impacted by a concurrent seismic event.

The Nuclear Energy Institute (NEI) issued several fact sheets, the latest on March 17, 2011: "Perspective on Radiation Releases and Emergency Planning at U.S. Nuclear Power Plants"

Current Understanding of Japanese Facilities

(This information is compiled from TEPCO press releases, IAEA information releases, Federation of Electric Power Companies of Japan, Japan Atomic Industrial Forum, World Association of Nuclear Operators, the NRC in-country team and others.)

Fukushima Daiichi

Japanese national government instructed evacuation for local residents within a 20km radius of the site boundary and sheltering in place out to 30 km for residents who stayed behind. IAEA confirms a no-fly zone out to 30 km around the Fukushima Daiichi plant. As of 1830 EDT on March 15, 2011, there have been no updates to protective actions.

Japanese authorities have changed the classification of the event from a Level 4 to a Level 5 "Accident with Wider Consequences" on the International Nuclear and Radiological Event Scale (INES).

NHK media report on March 17, 0100 EDT stated that helicopter crews dumping water on Unit 3 reactor building reported dose rates at 375 R/hr at 300 ft. above the building.

Earthquake/Tsunami Status Update March 18, 2011

1800 EDT

An array of fire trucks have been deployed at the site and appeared to be supplying / spraying water over Unit 3.

All available information indicates that the majority of releases from the Fukushima site have been carried out to sea by the prevailing winds. Forecast meteorological data for the 24 hour period until 2000 EDT on March 18, 2011 indicates wind headed offshore (from NW/westerly).

DOE Aerial Measurement Teams have completed two flyovers of the Daiichi site. NRC has received the data and the analyses from the first fly-over. Data from the second fly-over was received by DOE and is being analyzed.

Fukushima Daiichi
STATUS as of 1500 EDT, March 17, 2011 - (0400 Japan)

Unit 1 – (NRC priority: 4)

Core Status: Damaged, extent undetermined

Core Cooling: RCS depressurized (Source: FEPC); sea water injected to cool core (Source: NISA)

Primary Containment: functional (Source: JAIF)

Secondary Containment: lost (visual)

Spent Fuel Pool: 292 bundles in pool (Source: GEH); water level unknown (Source: JAIF); fire trucks are supplying seawater for cooling spray

Unit 2 – (NRC priority: 3)

Core Status: damaged, extent undetermined

Core Cooling: RCS depressurized (Source: FEPC); sea water injected to cool core (Source: NISA)

Primary Containment: Possible Torus damage

Secondary Containment: Hole cut in side of fuel floor metal to reduce H₂ buildup.

Steam coming from hole (visual).

Spent Fuel Pool: 587 bundles in pool (Source: GEH); fire trucks are supplying seawater for cooling spray

Unit 3 – (NRC priority: 1)

Core Status: Damaged, extent undetermined

Core Cooling: RCS depressurized (Source: FEPC); radiation released; sea water injected to cool core (Source: NISA)

Primary Containment: status unknown

Secondary Containment: lost (visual)

Spent Fuel Pool: 514 bundles in pool (Source: GEH); **Pool Dry (Source: NRC Team);** helicopters flew to drop water and water cannon truck sprayed water on March 17 (Source: METI); fire trucks are supplying seawater for cooling spray

Earthquake/Tsunami Status Update March 18, 2011

1800 EDT

Unit 4 – (NRC priority: 2)

Core Status: offloaded

Core Cooling: N/A

Primary Containment: N/A

Secondary Containment: lost (visual)

Spent Fuel Pool: 1201 bundles in pool (Source: GEH); pool may be dry; damage to fuel rods suspected (Source: JAIF); water was dumped on site with water cannons; fire trucks are supplying seawater for cooling spray

Unit 5 – Shutdown since January 3, 2011 (NRC priority: 5)

Core Status: Core in RPV (Source: INPO)

Spent Fuel Pool: 950 bundles (Source: GEH); Unit 6 emergency diesel generator is available

Unit 6 – Shutdown since August 14, 2010 (NRC priority: 6)

Core Status: Core in RPV (Source: INPO)

Spent Fuel Pool: 876 bundles (Source: GEH); Unit's emergency diesel generator is available.

Common Spent Fuel Pool (NRC priority: 7): 6,000 bundles (Source: GEH) located on land side of Unit 4 (visual)

Electrical Power (NRC priority: 7): Restoration from switchyard to Unit 2 480V in progress

Other Plants

Fukushima Daini

- No changes to report

Onagawa

- No changes to report

Rokkasho

- No changes to report

Protective Measures Team (PMT)

The PMT is working with DOE/NARAC to refine source term models in an effort to develop dose projections beyond 50 miles. The 50 mile distinction is made because NRC RASCAL modeling is only capable to estimate dose values out to 50 miles. Therefore, NRC has the responsibility to develop source terms and dose projections within Japan, up to 50 miles from the reactor site, while DOE has the lead for dose projections beyond 50 miles and for the United States and territories.

The source term provided to NARAC was: (1) 25% of the total fuel in unit 2 released to the atmosphere, (2) 50% of the total spent fuel from unit 3 was released to the atmosphere, and (3)

Earthquake/Tsunami Status Update March 18, 2011

1800 EDT

100% of the total spent fuel was released to the atmosphere from unit 4. All 96 hour dose projections (Alaska, Hawaii, West Coast) are well below the 1 rem total effective dose (TED) Protective Action Guide (PAG) based on predicted Cs-137 deposition. Except for Alaska, all thyroid dose estimates are well below the EPA 5 rem PAG. The thyroid estimate is very conservative and does not consider intervention actions like distribution of potassium iodide, removing dairy cows from contaminated pastures, or interdicting milk or leafy vegetables contaminated with I-131.

Wind shift over land not expected until Sunday, March 20, 2011.

International Response

- IAEA sent a two person team to conduct coordination activities and to take measurements. NRC communicated with IAEA to discuss the status and concerns.
- France has shared technical data with the NRC and publicly posted its assessment of projected doses in Tokyo on the IRSN website.
- Spain Parliament is still reviewing and deciding on support levels.
- Italy is interested in discussing what the USG is doing, and might be interested in helping in some way.
- China has offered to help.
- Russia has sent a team to Tokyo. The U.S. team has met with the Russians.
- South Africa will not be assisting.

Earthquake/Tsunami Status Update

March 18, 2011

1800 EDT

Reference

Units

1 rem (rem) = 1,000 millirem (mrem)

1 Sievert (Sv) = 1,000 milliSieverts (mSv) = 1,000,000 microsieverts (μ Sv)

1 rem = 0.01 Sv = 10 mSv

PMT One-pager of Current Status (2200 on March 20, 2011)

Radiological information of areas around Fukushima:

IAEA provided and update on off-site environmental radiation measurements monitored on March 21, 2011 from 0:00 – 06:00 UTC. The environmental radiation measurements stay somewhat elevated in the north of Fukushima prefecture outside of the 30 km exclusion zone. See the attached map for current dose rates.

The most recent plant monitoring post (MP) data from Fukushima Daiichi (measured 03/20/2011 at 09:30 EDT) provided doses ranging from 26.95 mrem/hr (see location 3 of attached) and 248.70 mrem/hr (see location 1 of attached).

AMS fly-over data is not expected to be received until sometime tomorrow due to weather forecast conditions. The last set of fly-over data from the DOE-NIT SITREP was provided on 3/20/11 at 6:21pm EST.

Radiological conditions:

San Onofre provided an air sampling update on 3/20/11 at 1905 EDT. One-hour counting time of a 24-hour sample yielded $1.85\text{E-}12$ to $2.0\text{E-}12$ $\mu\text{Ci/cc}$ of Iodine-131, and no other isotopes. The previous report (on 3/19/11 at 2043 EDT) provided an air sample that yielded 6.5 to 7.0×10^{-13} $\mu\text{Ci/cc}$ of Iodine-131, and no other isotopes. Measurements on 3/18/11 yielded 1.79×10^{-13} $\mu\text{Ci/cc}$ of Iodine-131, which was below the lower limit of detection.

Palo Verde Generating Station provided values for samples drawn on Unit 2 Auxiliary Building Roof on 03/21/11. Particulate grab sample results yielded $3.73\text{E-}13$ $\mu\text{Ci/cc}$ of Iodine-131, while iodine grab sample results yielded $6.70\text{E-}13$ $\mu\text{Ci/cc}$ of Iodine-131. The previous update provided (on 03/20/11 at 1200 EDT) on particulate grab sample yielded $2.25\text{E-}12$ $\mu\text{Ci/cc}$ of Iodine-131 and $3.87\text{E-}13$ $\mu\text{Ci/cc}$ of Cs-134, while the iodine grab sample results yielded $2.495\text{E-}12$ $\mu\text{Ci/cc}$ of Iodine-131. The previous update provided (on 3/19/11 at 2104 EDT) from the Unit 2 Aux Building roof yielded a result of 1.54×10^{-12} $\mu\text{Ci/cc}$ of Iodine-131.

Raw milk samples were collected from a farm (in town called Kawamata) and up to 1,510 Becquerel per kilogram (Bq/kg) of Iodine-131 were detected (current limit set by law is 300Bq/kg). In addition, one spinach sample collected from the city of Hitachinaka (120km south of plant) contained 8,420Bq/kg of Iodine-131 (current limit set by law is 2,000Bq/kg). Another spinach sample from Takahagi (closer to plant) recorded 15,020Bq/kg of Iodine-131. Caesium-134 and Caesium-137 was also detected in slightly larger amounts than the limits set by law. Small amounts of radioactive substances were also detected in Tokyo's tap water although the amounts are considered to be too small to pose a threat to human health. (Source: Wall Street Journal, March 19, 2011; "Elevated Radioactivity Found in Japanese Milk, Spinach."). See attached sheet. PMT is coordinating with Task Force Team to get additional information of food stuffs for DOE.

NARAC Calculations:

- NARAC completed performing a dose assessment for Tokyo using the "super core" source term.

DDDD / 3

March 21, 2011

2300 EDT

Briefing Sheet

Fukushima Daiichi

Units 1, 2, and 3 reactors appear to be in a static condition with seawater injection continuing. Containment integrity status is unknown on Units 1, 2, and 3. Containment pressure of Unit 3 has stabilized and venting is not imminent. Gray smoke emanated from Unit 3 (3:50 pm local time) which caused site evacuation; source of smoke unknown. News reports indicated the workers returned. There have been reports of steam coming from Unit 2.

TEPCO has installed high voltage AC power cables from a nearby transmission line to Units 1&2 and there is temporary power available at a power panel. TEPCO is working to have temporary cables run to necessary cooling equipment. Power to Units 3 is planned. External power cables were connected to a power center in Unit 4. Two diesel generators are running and supplying AC power to Units 5&6. A Unit 5 RHR pump, powered by one of the U-6 diesel generators is providing cooling to the Unit 5 spent fuel pool. External AC power cables have reached Units 5&6, but power has not yet been connected.

- Dose rates have not changed significantly at the site although some reductions were reported following efforts to add water to Unit 3. DOE Aerial Monitoring System assessments support the recommendation for evacuation of US citizens within 50 miles of the plant. Concentrations of iodine-131 in milk from cows within 20 kilometers (about 12 miles) of Fukushima Dai-ichi have reached levels 10 times maximum admissible levels and distribution of these products have been suspended. AMS flights have been grounded due to weather.
- Priority for PMT is "Bounding Reasonable Model", working with Navy and DOE.
- Industry Consortium call established for 10 am each day. Priority is to establish a method for US industry to interact with TEPCO, and US Government agency (not NRC) to help coordinate logistics, funding, etc. Call tomorrow with Chairman and USAID to determine the right agency to lead. Australian C-17 with parts of one train of Bechtel-designed equipment still on the ground with mechanical difficulties and is expected to arrive 0300 EDT tomorrow. Other parts of that train of Bechtel-designed equipment arrived at Yokota Air Base today at about 19:30 EDT.
- Working on an inter-team product to take a 50,000 ft view, step back, and see if there is anything we are missing, any efforts we should be doing but are not. Expect PMT, RST and LT to have this tomorrow morning
- Draft criteria for approach for relaxing 50 mile PAR will be developed and peer reviewed by tomorrow 7 am EDT.

DDDD/4

March 22, 2011

0600 EDT

Briefing Sheet Fukushima Dai-ichi

- Unit 1, 2 and 3 reactors appear to be in a static condition. Seawater injection to the reactor coolant systems (via fire trucks) is continuing. Containment integrity status is uncertain for all 3 units. Reports of smoke (steam?) coming from Unit 2.
- AC power cables installed from a nearby transmission line to Units 1&2. TEPCO is working to establish power to necessary cooling equipment (U2 first). Electric power to Unit 3 is planned. Power cables connected to a load center in Unit 4. External AC power restored to Unit 5. Unit 6 diesel generators running. RHR pumps providing cooling to both Units 5&6.
- Multi-day trending of all available dose rate information shows slightly declining levels. On-site surveys of the exterior of reactor buildings show dose rates for 60 mR/hr to 15 R/hr with the highest dose rates around the Unit 3 reactor building. DOE Aerial Monitoring System assessments support the recommendation for evacuation of US citizens within 50 miles of the plant. AMS flights have been grounded due to weather for the past two days. Concentrations of iodine-131 in milk from cows within 20 kilometers (about 12 miles) of Fukushima Dai-ichi have reached levels 10 times maximum admissible levels and distribution of these products have been suspended.
- Working with NARAC to evaluate radiological assessment of "Bounding Reasonable (Source Term) Model" completed.
- Industry Consortium call established for 10:00 am each day. Priorities include establishing a method for US industry to interact with TEPCO (INPO representative scheduled to arrive in Tokyo 3:00 pm JDT March 23), and offering longer-term solutions for core and spent fuel pool cooling. First of two shipments of the one train of Bechtel-designed equipment arrived at Yokota Air Base today; second shipment expected to arrive today. NRC initiated request to identify another U.S. Government agency to coordinate equipment support logistics, funding, etc.
- Conducting an objective review to determine if there are any additional actions that we should be taking but to date may have missed.
- NRC drafted criteria for relaxing the previously issued 50 mile protective action recommendation around Fukushima.
- Continuing to refine the criteria upon which the agency would "stand-down" from its active monitoring activities in response to the Fukushima reactor events.

DDDD/5

March 22, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

Units 1, 2, and 3 reactors appear to be in a static condition. Seawater injection to the reactor coolant systems (via fire trucks) is continuing. Containment integrity status is uncertain for all 3 units. Report of steam coming from Unit 2. Reports of smoke from Unit 3 due to potential oil fire (Source: INPO). Unit 1 feedwater thermocouple reading 720 degrees F; and reactor lower head temperature is 741 degrees F (may not be reliable).

AC power cables installed from a nearby transmission line to Units 1&2. TEPCO is working to establish power to necessary cooling equipment (U2 first). Electrical power has been restored to the Unit 3 control room (Source: NHK World). Power cables connected to a load center in Unit 4. External AC power restored to Unit 5 and 6. Unit 6 diesel generators running. RHR pumps providing cooling to both Units 5&6. 480 VAC power has been restored to portions of all 4 units, but limited capability to operate any equipment at this time.

Multi-day trending of all available dose rate information shows slightly declining levels.

Some indications of trace but detectable amounts of I-131 are being reported at some nuclear plants in the U.S. (Ginna and Nine Mile). Region I is being asked to get more detail.

Coordinating with NARAC and interagency partners on assumptions and key messages for dose assessments from the "Bounding Reasonable (Source Term) Model" and a more conservative, extreme source term model, including next steps.

Industry Consortium call established for 10:00 am each day. Priorities include establishing a method for US industry to interact with TEPCO (INPO representative scheduled to arrive in Tokyo 3:00 pm JDT March 23) and offering longer-term solutions for core and spent fuel pool cooling. Two shipments of the first train of Bechtel-designed equipment arrived at Yokota Air Base today. There is a third shipment of components for this train that will be shipped on Thursday, as the fittings etc are still being fabricated. NRC initiated request to identify another U.S. Government agency to coordinate equipment support logistics, funding, etc.

9:00 pm call with PMT, Embassy, and DOD on PA recommendations.

9:00 pm call with RST and TEPCO. Call will be primarily focused on salt, hydrogen, and criticality issues. RST is providing assistance to TEPCO following their request for analysis of when lower core will be filled with salt, and means to mitigate this, including criticality issues.

DDDD/6

March 23, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

Units 1, 2, and 3 reactors appear to be in a static condition. Seawater injection to the reactor coolant systems (via fire trucks) is continuing; however flow rates very limited on Unit 1 and Unit 3. Containment integrity status is uncertain for all 3 units. Report of steam coming from Unit 2. Reports of smoke from Unit 3 due to potential oil fire (Source: INPO). Pump cooling Unit 5 reactor and spent fuel pool (RHR) stopped today, TEPCO working to replace.

AC power cables installed from a nearby transmission line to Units 1&2. TEPCO is working to establish power to necessary cooling equipment (U2 first). Electrical power has been restored to the Unit 3 control room (Source: NHK World). Power cables connected to a load center in Unit 4. External AC power restored to Unit 5 and 6. Unit 6 diesel generators running. RHR pumps providing cooling to both Units 5&6. 480 VAC power has been restored to portions of all 4 units, but limited capability to operate any equipment at this time.

Multi-day trending of all available dose rate information shows slightly declining levels.

Some indications of trace but detectable amounts of I-131 are being reported at some nuclear plants in the U.S. (Ginna, Nine Mile, Kewaunee, SONGS, and Diablo Canyon). PMT is reviewing data sets. Requested NRR assistance in reviewing Information Notice on industry data collection, similar to what was done following the Chernobyl accident in 1986

Industry Consortium call established for 10:00 am each day. Priorities include establishing a method for US industry to interact with TEPCO (INPO representative has arrived in Tokyo 23 March 23 local time) and offering longer-term solutions for core and spent fuel pool cooling. Two shipments of the first train of Bechtel-designed equipment arrived at Yokota Air Base. There is a third shipment of components for this train that will be shipped on Thursday, as the fittings etc., are still being fabricated. DoD is the lead U.S. Government agency coordinating equipment support logistics, funding, etc.

EDO and Office Directors are addressing roles and responsibilities of the Operations Center vice work to be done by offices (outside Operations Center).

DDDD/7

March 24², 20112300-2011
0600 EDT

Briefing Sheet

Formatted: Top: 1"

Fukushima Dai-ichi

- Units 1, 2, and 3 reactors appear to be in a static condition ~~with~~. Seawater injection to the reactor coolant systems (via fire trucks) is continuing. Containment integrity status is ~~unknown-uncertain on Units 1, 2, and for all 3 units.~~ Containment pressure of Unit 3 has stabilized and venting is not imminent. Gray smoke emanated from Unit 3 (3:50 pm local time) which caused site evacuation; source of smoke unknown. News reports indicated the workers returned. There have been reports of smoke (steam?) coming from Unit 2.

Formatted: Indent: Left: 0.25", Bulleted +
Level: 1 + Aligned at: 0.75" + Indent at: 1"

TEPCO has installed high-voltage AC power cables installed from a nearby transmission line to Units 1&2 and there is temporary power available at a power panel. TEPCO is working to ~~have temporary cables run to establish power to~~ necessary cooling equipment (U2 first). Electric power to Units 3 is planned. ~~External power cables were~~ Power cables connected to a power load center in Unit 4. Two diesel generators are running and supplying AC power to Units 5&6. A Unit 5 RHR pump, powered by one of the U-6 diesel generators is providing cooling to the Unit 5 spent fuel pool. External AC power cables have reached restored to Units 5. Unit & 6 diesel generators running, but power has not yet been connected. RHR pumps providing cooling to both Units 5&6.

Formatted: Line spacing: single

- Multi-day trending of all available dose rate information shows slightly declining levels. ~~s-On-site surveys of the exterior of reactor buildings show dose rates for 60 mR/hr to 15 R/hr with the highest dose rates around the Unit 3 reactor building. have not changed significantly at the site although some reductions were reported following efforts to add water to Unit 3.~~ DOE Aerial Monitoring System assessments support the recommendation for evacuation of US citizens within 50 miles of the plant. AMS flights have been grounded due to weather for the past two days. Concentrations of iodine-131 in milk from cows within 20 kilometers (about 12 miles) of Fukushima Dai-ichi have reached levels 10 times maximum admissible levels and distribution of these products have been suspended. ~~AMS flights have been grounded due to weather.~~
- Working with Priority for PMT is NARAC to evaluate radiological assessment of "Bounding Reasonable (Source Term) Model", working with Navy and DOE completed.
- Industry Consortium call established for 10:00 am each day. Priorityies include is to establish a method for US industry to interact with TEPCO (INPO representative scheduled to arrive in Tokyo 3:00 pm JDT March 23), and and US Government agency (not NRC) to help coordinate logistics, funding, etc. offering longer-term solutions for core and spent fuel pool cooling. Call tomorrow with Chairman and USAID to determine the right agency to lead. Australian C-17 with parts First of two shipments o of the one train of Bechtel-designed equipment arrived at Yokota Air Base today; second shipment still on the ground with mechanical difficulties and is expected to arrive 0300 EDT

Formatted: Indent: Left: 0.25", Line spacing:
single, Bulleted + Level: 1 + Aligned at: 0.75"
+ Indent at: 1"

Formatted: Line spacing: single

Formatted: Line spacing: single

DDDD/8

~~OFFICIAL USE ONLY~~

March 24~~2~~, 2011

2300-2011
0600 EDT

~~tomorrow~~today. NRC initiated request to identify another U.S. Government agency to coordinate equipment support logistics, funding, etc. Other parts of that train of Bechtel-designed equipment arrived at Yokota Air Base today at about 19:30 EDT.

- ~~Conducting an objective review to determine~~ Working on an inter-team product to take a 50,000 ft view, step back, and see if there are any additional actions that we should be taking but to date may have missed anything we are missing, any efforts we should be doing but are not. Expect PMT, RST and LT to have this tomorrow morning
- ~~NRC D~~rafted criteria for approach for relaxing the previously issued 50 mile PARprotective action recommendation will be developed and peer reviewed by tomorrow 7 am EDT around Fukushima.
- Continuing to refine the criteria upon which the agency would "stand-down" from its active monitoring activities in response to the Fukushima reactor events.

Formatted: Line spacing: single

Formatted: Line spacing: single

Formatted: Indent: Left: 0.5", Line spacing: Multiple 1.15 li, No bullets or numbering, Adjust space between Latin and Asian text, Adjust space between Asian text and numbers

~~OFFICIAL USE ONLY~~

OFFICIAL USE ONLY

March 24, 2011

1515 EDT

Briefing Sheet
Fukushima Daiichi

Plant status remains unchanged from status at 0600.

PMT is working with OSTP and EPA to properly manage the environmental data and communicate all environmental data, including iodine in drinking water. PMT briefed that the detected iodine levels in the rain water are substantially below the drinking water standards. RADnet is posting current monitoring data on web. This info is being integrated with data gathered from test band monitoring and reported to OSTP.

DOE has agreed the US should reach out to Japan as one voice only. To facilitate this, DOE (Pete Lyons and Steve Aoki) were provided a summary of the 1000 industry consortium call. In addition, NRC/RES will participate in a DOE call everyday from 1700 to 1800. This will help facilitate the one voice. This will help facilitate the one voice. Chairman is continuing to work with others to establish a Senior level person as a focal point.

Japan would like to share and coordinate all protective measures data. Their system – Speedi – with AMS. Will coordinate with DOE/NR/ and others.

PMT has been working on two runs with NARAC. The first run is referred to as the transpacific Melcor run and assumes a source term of 7 cores and actual weather and meteorological data. The preliminary results are in and they show no PAGs exceeded on the west coast, although they do illustrate approximately 4.5 rem child thyroid dose with no interdiction.

The second run is referred to as the Tokyo run and assumes 3 in reactor cores with various degrees of containment failure. This preliminary run has come in and the team is arranging with NARAC to rerun the analysis as it used extremely conservative and nonrealistic containment leakage values.

NARAC run on most plausible case needs to be coordinated before release. Current source term will be updated with most current information on plant status. Based on coordination with DOS, they are waiting for White House clearance to share modeling results with Japanese government through Ambassador Roos.

Per NRC Japan team, Japan has officially accepted the pumping system at the air force base, and will be using it. Will move equipment tomorrow afternoon after receiving training on it at base. They accepted the water barges as well. No delivery date yet, worried about possible harbor damage from earthquake. The NRC team also reports that they have accepted 5 seats within the TEPCO EOC. Will show up there first time Friday morning (JST) with INPO representative.

INPO/DOE has accepted action to figure out how to remove spent fuel from the site. The Japanese provided a list of the things they would accept, including the million doses of KI, bottled water, rad. monitoring equipment, robotics and remote control equipment. DOD and DOE lead. There will be an actual list with parties identified developed 25 March.

3 workers exposed to 173 – 180 mSv (reported by NHK news time).

Provided latest seismic Q&A to NSIR (Daryl Johnson) for distribution to DHS secretary. OPA is aware that Chuck Casto spoke with reporters last evening in Japan. Message was "we are here to help".

~~OFFICIAL USE ONLY~~

DDDD/19

March 24, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

In an early morning press conference on Thursday, March 24, NISA indicated that progress was being made in injecting fresh water into the reactors: fresh water is reportedly being injected into Unit 1—albeit using fire trucks. Seawater injection to the other units continues; however, the flow rate to the reactor pressure vessels is unknown. Containment integrity is questionable for all 3 units—particularly for Units 2 and 3. Pump cooling for Unit 5 reactor and spent fuel pool (RHR) stopped on Wednesday and TEPCO plans to re-establish today. (Source: NISA)

AC power cables installed from a nearby transmission line to Units 1&2. TEPCO is working to establish power to necessary cooling equipment (U2 first). Electrical power has been restored to the Unit 3 control room (Source: NHK World). Power cables connected to a load center in Unit 4. External AC power restored to Unit's 5 and 6. Unit 6 diesel generators running. 480 VAC power has been restored to portions of all 4 units, but limited capability to operate any equipment at this time.

Multi-day trending of all available dose rate information shows slightly declining levels.

Indications of trace, but detectable amounts of I-131 are being reported at some nuclear plants in the U.S. (Ginna, Nine Mile, Palo Verde, SONGS, and Diablo Canyon, Columbia, Millstone). PMT is reviewing data sets. Industry has agreed to collect the data and provide to NRC for distribution with Federal Government (anticipate EPA lead).

Industry Consortium call established for 10:00 am each day. Priorities include establishing a method for US industry to interact with TEPCO (INPO representative arrived on March 23) and offering longer-term solutions for core and spent fuel pool cooling. Two shipments of the first train of Bechtel-designed equipment arrived at Yokota Air Base. There is a third shipment of components for this train that is scheduled to be shipped today.

EDO and Office Directors are addressing roles and responsibilities of the Operations Center vice work to be done by offices (outside Operations Center).

ET initially assessing, with NRC in-country team, anticipated size and expertise makeup of next group of in-country support.

Recommend reaching out to Pete Lyons to help DOE understand NRC rationale for our position with respect to providing salt and RHR restart strategies via letter to TEPCO.

Naval Reactors requested an assessment of reactor core and spent fuel pool conditions. This would be developed and shared in a timely manner for the purposes of capturing what "could" happen, sharing it with the Japanese and opening the dialogue for what recommendations the U.S. would make if such conditions exist (such as filling the primary containment if fuel has the potential to go ex-vessel). NR specifically interested in assessing protective actions for U.S. personnel in Japan in this context.

DADD/10

March 25, 2011

1515 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

- Freshwater injection to Units 1 and 3. (source is a reservoir)
- Flooding in turbine building of Unit 3. Found elevated iodine 131 and lanthanum 140 in samples indicating potential leakage from core.
- RHR pump on Unit 5 is restored.
- NISA update at 0500 EDT on 3/25, Electrical power is available up to all 6 units. For Units 1-4, the licensee is in the process of meggering and testing components to see which ones can be safely energized. Lights are on in the control room, and licensee is in the process of restoring ventilation.

PMT is working with NARAC on the right source term for dose runs. (Most plausible realistic [Tokyo] model based on information we know). Run is complete at 1400 and results are being verified..

DOE is taking the US lead in Japan on robotics and environmental issues.

Per NRC Japan team, one day training has been completed on the Bechtel pumping system. There will be an additional day training completed 26 March and then the Self Defense Force stands ready to move equipment out to the site.

Plans are ongoing for the U.S. Navy to provide two fresh water barges to the site as well. No delivery date has been established yet, as there are concerns about possible harbor damage from earthquake.

The NRC team (and INPO representative) went to the TEPCO EOC yesterday and will continue a presence there.

The Japanese government is discussing a list of the things they would accept for use. DOD and DOE have the lead. List of 17 items provided during the cabinet meeting for discussion within Japan ministries and then US government and industry.

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. . List was provided to NISA and will be discussed at TEPCO tomorrow.

NRC met with representatives from the National Emergency Management Association (NEMA) today regarding ongoing business (EP Rulemaking update). The State Emergency Directors uniformly expressed the desire for a Federal official to serve as the focus for USG messaging on the potential health effects to US States and Territories. NRC understands that DOE is taking this role, however a POC has not yet been identified.

DDDD/11

March 25, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

- Freshwater injection to Units 1 and 3. (source is a reservoir)
- Flooding in turbine building of Unit 3. Found elevated iodine 131 and lanthanum 140 in samples indicating potential leakage from core.
- RHR pump on Unit 5 is restored.
- NISA update at 0500 EDT on 3/25, Electrical power is available up to all 6 units. For Units 1-4, the licensee is in the process of meggering and testing components to see which ones can be safely energized. Lights are on in the control room, and licensee is in the process of restoring ventilation.

PMT is working with NARAC on the right source term for dose runs. (Most plausible realistic [Tokyo] model based on information we know). Run is complete at 1400 and results are being verified.

Japanese government officials have recommended to residents living within 20 to 30 km of the site to voluntarily evacuate their homes—not because of changing conditions at the site—but because of increasingly difficult logistical issues.

DOE is taking the US lead in Japan on robotics and environmental issues.

Per NRC Japan team, one day training has been completed on the Bechtel pumping system. There will be an additional day training completed 26 March and then the Self Defense Force stands ready to move equipment out to the site.

The U.S. Navy is sending two fresh water barges to the site. One of the barges should arrive within a day—however, there are concerns about possible harbor damage from earthquake, which could make it difficult to dock.

The NRC team (and INPO representative) went to the TEPCO EOC yesterday and will continue a presence there.

The Japanese government is discussing a list of the things they would accept for use. List of 17 items provided during the cabinet meeting for discussion within Japan ministries and then US government and industry. DOD and DOE have the lead for the majority of the items listed.

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. . List was provided to NISA and will be discussed at TEPCO tomorrow.

NRC met with representatives from the National Emergency Management Association (NEMA) today regarding ongoing business (EP Rulemaking update). The State Emergency Directors uniformly expressed the desire for a Federal official to serve as the focus for USG messaging on the potential health effects to US States and Territories. NRC understands that DOE is taking this role, however a POC has not yet been identified. The Nuclear Energy Institute has volunteered to provide the NRC with environmental sampling data from U.S. nuclear power plants. The NRC is sharing this information with the EPA who is the central point of contact for this information. The public U.S. radiation monitoring data (RADNET) is posted on EPA's public website.

DDDD1/2

~~OFFICIAL USE ONLY~~

March 25, 2011

2200 EDT

~~OFFICIAL USE ONLY~~

March 25, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

Plant status remains unchanged from status at 1515.

PMT is working with OSTP and EPA to properly manage and communicate all environmental data collected domestically, including iodine in drinking water. PMT briefed that the detected iodine levels in the rain water are substantially below the drinking water standards. RADnet is posting current monitoring data on web. This info is being integrated with data gathered from test band monitoring and reported to OSTP.

DOE has agreed the US should reach out to Japan as one voice only. To facilitate this, DOE (Pete Lyons and Steve Aoki) were provided a summary of the 1000 industry consortium call. In addition, NRC/RES will participate in a DOE call everyday from 1700 to 1800. This will help facilitate the one voice. Chairman is continuing to work with others to establish a Senior level person as a focal point.

Per NRC Japan team, Japan has officially accepted the pumping system at the air force base, and will be using it. The equipment will be moved tomorrow afternoon after TEPCO received training on it at the base. Plans are being made for the U.S. Navy to provide two fresh water barges to the site as well. No delivery date has been established yet, as there are concerns about possible harbor damage from earthquake. The NRC team also reports that they have accepted 5 seats within the TEPCO Emergency Operations Center (EOC). The team will go to the EOC for the first time Friday morning (JST) with an INPO representative.

INPO/DOE has accepted action to figure out how to remove spent fuel from the site. The Japanese provided a list of the things they would accept, including the million doses of KI, bottled water, radiation monitoring equipment, robotics and remote control equipment. DOD and DOE have the lead.

The NRC Reactor Safety Team has provided a set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. The recommendations were coordinated with GEH, EPRI, INPO, Naval Reactors and DOE.

The NRC Protective Measures Team developed guidance, at the request of State Dept., to be provided to Americans such that they could temporarily re-enter the 50-mile evacuation zone (not to enter the Japanese 20 Km evacuation zone) for the purposes of retrieving personal effects. Guidance was provided to the NRC Japan team to get to be forwarded to the Ambassador.

The Liaison Team is nearing completion of assembling briefing information to support the Chairman's meeting with the Japanese Ambassador at 11:00 a.m. this morning. The team has developed some information, coordinating with the NRC Site Team in Japan, specifically related to effectiveness of coordination. To summarize, coordination has been improving.

DDDD/13

March 27, 2011

2300 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

Freshwater injection to Units 1, 2, and 3—believed to be contributing to containment flooding.

Water in the Unit 1 turbine building lower level was pumped into a condenser bay. Significant contamination levels in lower levels of U2 and U3 turbine buildings (isotope analysis indicates communication with reactors).

One train of the Bechtel pumping system is being deployed to the site. One fresh water barge from USFJ was being moved to site. Plan is to dock, then resupply the barge from another that will be filled at a nearby port. The Japanese government has requested help with shielding, removal of spent fuel, and robotics. TEPCO has contracted with the Shaw Company for systems for decay heat removal and debris removal. (Source: Site Team).

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. In response to a request from the Ambassador, management from the contributing US Organizations has concurred on the strategies with industry providing further clarification.

Chuck Casto and John Monninger travelled to J-Village, and did not see the need for any NRC staff to relocate there. J-Village activities include Daiichi Reactor accident mitigation and Daiini site cleanup activities.

The White House has requested a white paper on the safety of US spent fuel storage, both wet and dry. Spent Fuel Storage safety paper has been transmitted to White House staff. Clarification provided (internally) regarding minimum time between spent fuel being removed from reactor and move to dry cask storage.

The Chairman has arrived in Japan and beginning a full day of meetings.

Japan has confirmed safety and location of 49 large sources and is working to locate 620 smaller sources.

DDDD/14

March 27, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

Freshwater injection to Units 1, 2, and 3—believed to be contributing to containment flooding. Portable EDGs have arrived onsite and working on temporary cabling to shift to plant pumps.

Water in the lower level of the turbine buildings of Units 2 and 3. Water in Unit 1 was pumped into a tank in the condenser bay of turbine building. Significant contamination in U2 & 3 sumps.

One train of the Bechtel pumping system is being deployed to the site. One fresh water barge arrived and one is on its way to the site. The Japanese government has requested help with shielding, removal of spent fuel, and robotics. TEPCO has contracted with the Shaw Company for systems for decay heat removal and debris removal. (Source: Site Team).

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. In response to a request from the Ambassador, management from the contributing US Organizations has concurred on the strategies with industry providing further clarification.

Chuck Casto and John Monninger travelled to J-Village, and did not see the need for any NRC staff to relocate there. J-Village activities include Daiichi Reactor accident mitigation and Daiini site cleanup activities.

The White House has requested a white paper on the safety of US spent fuel storage, both wet and dry. Spent Fuel Storage safety paper has been transmitted to White House staff.

PMT responded to a White House question on an apparent discrepancy in the source term used by NRC for the plausible Tokyo scenario. The releases from U-3 were smaller relative to Units 1 and 2 because of an assumed hold-up period before release.

The Chairman is traveling to Japan.

Japan has confirmed safety and location of 49 large sources and is working to locate 620 smaller sources.

DDDD/15

March 28, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

Freshwater injection to Units 1, 2, and 3—believed to be contributing to containment flooding.

Water in the Unit 1 turbine building lower level was pumped into a condenser bay. Significant contamination levels in lower levels of U2 and U3 turbine buildings (isotope analysis indicates communication with reactors).

Planning to install equipment to inert Unit 1 by March 30th.

One train of the Bechtel pumping system is being deployed to the site. One fresh water barge from USFJ was being moved to site. Plan is to dock, then resupply the barge from another that will be filled at a nearby port. The Japanese government has requested help with shielding, removal of spent fuel, and robotics. TEPCO has contracted with the Shaw Company for systems for decay heat removal and debris removal. (Source: Site Team).

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. In response to a request from the Ambassador, management from the contributing US Organizations has concurred on the strategies with industry providing further clarification. Further modifications to these recommendations may be considered if primary containment for Units 2 and 3 cannot be assured.

The EPA commented on NRC recommendations for temporary re-entry into evacuated areas. The comments were incorporated into the original paper, and the paper was re-sent to NSS (WH).

The Chairman is in Japan and meeting with a host of officials.

Japan has confirmed safety and location of 49 large sources and is working to locate 620 smaller sources.

LT is working to contact NSS (WH) to participate in calls requested by USPACOM regarding radiological conditions at the Fukushima Dai-ichi plants.

PMT is working on Japan embassy questions on 50 mile evacuation recommendation by US.

DDDD/16

March 28, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

Plant status updates:

Freshwater injection to Units 1, 2, and 3—believed to be contributing to containment flooding.

Water in the Unit 1 turbine building lower level was pumped into a condenser bay. Significant contamination levels in lower levels of U2 and U3 turbine buildings (isotope analysis indicates communication with reactors). The RST has developed a draft discussion paper on the Potential Leakage Paths to the Turbine Building. This paper is being vetted internally, will be discussed with (GEH, INPO, NR) for comments prior to dispatch to site team. Site team advises that turbine bldg water levels are not increasing. TEPCO is considering pumping the water out of the Turbine building basement for cleanup and recovery.

Planning to install equipment to inert Unit 1 by March 30th.

One train of the Bechtel pumping system is being deployed to the site. Both barges are staged 40 miles from site conducting pump testing. Resupply barge from ship anchored at sea. The Japanese government has requested help with shielding, removal of spent fuel, and robotics. TEPCO has contracted with the Shaw Company for systems for decay heat removal and debris removal. (Source: Site Team).

PMT has engaged with NEI and other industry groups to share radiological information and concerns. NEI is serving as a focal point for collecting U.S. nuclear plant monitoring data in environmental samples, and is developing an online database with data from US plants. NEI has committed to providing NRC a table with information received until the protected web site is online and functioning.

The NRC Reactor Safety Team has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. Revisions to the severe accident management strategies are being considered regarding challenges associated with access constraints. Any revision will be fully vetted with all contributing parties.

The EPA commented on NRC recommendations for temporary re-entry into evacuated areas. The comments were incorporated into the original paper, and the paper was re-sent to NSS (WH). PMT is coordinating review of recommendations through series of calls this afternoon.

LT is working to contact NSS (WH) to participate in calls requested by USPACOM regarding radiological conditions at the Fukushima Dai-ichi plants.

PMT provided response to Japan embassy questions on 50 mile evacuation recommendation by US.

The NRC/Consortium call is being re-established at 10:00hrs 29, March.

The Chairman is returning to HQ's departing Japan early on 29 March..

DDDD/17

March 29, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

TEPCO injecting fresh water into Units 1, 2 and 3; and *has transitioned* to temporary electric pumps for injection (all three units); Actions underway to pump water from flooded turbine building basements into condensers/other tanks. TEPCO plans to inject water into U-1 SFP from Cement Pumper truck on 30, March. Lighting returned to U-4 control room, currently no access due to dose rates. TEPCO is considering spraying Zeolite on the outside and interior of the Rx Bldgs in an effort to minimize re-suspension of fission products in the air but having difficulty planning application due to the elevated dose rates.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags, etc.).

TEPCO is planning to install equipment to inert Unit 1 by 31 March.

One train of the Bechtel pumping system is being deployed to the site. Both barges are being moved to the site (10 hr cruise), intending to arrive Wednesday. Resupply water ship anchored at sea. The GOJ has requested help with shielding, removal of spent fuel, and robotics. The NRC Site Team indicates that TEPCO has contracted with the Shaw Company for decay heat removal systems and debris removal.

NEI is serving as a focal point for collecting U.S. nuclear plant monitoring data in environmental samples, and is developing an online database with data from US plants. NEI database is available and being populated. NRC and other agencies have read access.

The RST has provided a coordinated (GEH, EPRI, INPO, NR, DOE) set of recommendations pertaining to severe accident management strategies to the NRC team in Japan. Revisions to the severe accident management strategies are being considered in light of Unit 2 and Unit 3 containment conditions, and environmental release concerns. Any revision will be fully vetted with all parties. NRC continues to recommend filling containment. RST is updating recommendation to reflect current consensus.

The PMT evaluated information from TEPCO and NISA regarding levels of plutonium sampled on site. The levels (5.4×10^{-1} Bq/kg) are very low, and below background levels applicable to the eastern range of the Rocky Mountains (in the US).

ET director will provide PACOM the NRC's assessment of conditions at the Fukushima Dai-ichi plants during a 16:00hrs 29 March IPC call, and whether conditions are getting worse. Vince Holahan has arrived in Hawaii, and plans to meet with PACOM at 12:15hrs 29 March EST.

The NRC/Consortium call has been re-established. The request has been made that the Site team act as a clearinghouse reviewer for consistency of request to avoid duplication. This will be shared with the other stakeholders to maintain a "single-list" to operate to. It was also requested that the call be moved to 1900 (EDT) to support having a Site Team member participate.

IAEA Director General is convening a meeting of the member states next Monday (Tuesday?), regarding the events at Fukushima. Seeking additional insight regarding purpose and expected outcomes from Mark Schaeffer.

DDDD/18

USNRC Emergency Operations Center Status Update

March 30, 2011

Earthquake / Tsunami Status Update
Compiled by Executive Briefing Team

This report includes NRC's current understanding of the ongoing situation in Japan.

Fukushima Daiichi

STATUS as of 0430 EDT, March 30, 2011 - (1730 Japan, March 30)

Unit 1 – (NRC Priority: 1)

Core Status: Damaged, fuel partially or fully exposed (Source: JAIF, NISA, TEPCO).

The volume of sea water injected to cool the core has left enough salt to fill the lower plenum to the core plate (Source: GEH, US Industry).

Vessel temperatures **138°C** at bottom drain, **309°C** at FW nozzle (Source: **NISA-3/29**)
RPV at 60.5 psig (Source: JAIF 3/29), DW and torus pressure at 26.6 psig (Source: NISA 3/29).

Core Cooling: Fresh water injection initiated at 1537 JST on March 25, injecting through FW 37.4 gpm (Source: NISA).

Recirculation pump seals have likely failed. (Source: GEH)

Primary Containment: Functional, 26.6 psig (Source: JAIF 3/29) Pumping water from turbine building basement to main condenser (Source: IAEA 3/29)

Secondary Containment: Severely damaged (hydrogen explosion)

Spent Fuel Pool: Temperature and level unconfirmed; white smoke being emitted as of 0630 JST on March 29 (Source: TEPCO 3/29). Considering injecting water (Source: JAIF 3/28).

All fuels in this pool are over 12 years old and have very little heat input (<0.1 MW) (Source: DOE).

Rad Levels: DW 3370 R/hr, Torus 2110 R/hr (source instruments unknown), Outside plant: 12 mR/hr at main gate (slight trend downward) (Source: MEXT)

Power: On external power (Source: NISA); equipment testing in progress (Source: JAIF, NISA, TEPCO). External AC power to the Main Control Room of Unit 1 became available at 1130 JST on March 24, 2011. Lighting operating in Main Control Room.

Unit 2 – (NRC Priority: 2)

Core Status: Damaged, fuel partially or fully exposed (Source: JAIF, NISA, TEPCO).

Bottom head temperature **120°C**, feed water nozzle temperature 153.7°C (Source: NISA). RVP pressure -3.9 psig (Source: JAIF 3/29). DW pressure 0 psig (Source: NISA 3/29).

Core Cooling: Fresh water with boric acid injection as of 1010 JST on March 26 (Source: TEPCO). 7 m³/h or 31 gpm (Source: NISA 3/29), recirculation pump seals have likely failed. (Source: GEH)

Primary Containment: Damage suspected (Source: JAIF, NISA, TEPCO). Pressure: 0 psig (Source: NISA 3/29)

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO), blowout panels removed from side of reactor building to reduce hydrogen buildup (Source: visual)

DDDD/19

OFFICIAL USE ONLY

Earthquake/Tsunami Status Update

March 30, 2011

0430 EDT

Spent Fuel Pool: Fuel covered, freshwater periodically injected via fuel pool cooling system (Source: TEPCO 3/29), fuel pool temperature **46°C** (Source: NISA 3/29); Pool may be overflowing based on observations of water in adjacent areas (Source: NRC Team); white smoke being emitted as of 1830 EDT on March 27 (Source: IAEA 3/28) – confirmed (Source: TEPCO 3/29)

Rad Levels: DW 4050 R/hr; Torus 139 R/hr (source instruments unknown); Outside plant: 12 mR/hr at main gate (slight trend downward) (Source: MEXT)

Power: External AC power has reached the unit; checking integrity of equipment before energizing. Power distribution panels connected (IAEA 3/27)

Unit 3 – (NRC Priority: 3)

Core Status: Damaged, fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). Bottom head temperature **121°C**, FW nozzle temperature: **62°C** (Source: NISA 3/29). RVP pressure -3.7 psig (Source: JAIF 3/29). RPV level ~2/3 TAF (Source: IAEA 3/28). DW pressure 0.97 psig (Source: IAEA 3/28).

Core Cooling: Freshwater injection via fire line initiated, 52.8 gpm via temporary electrical pump on 1802 JST March 25 (Source: IAEA 3/29). Recirculation pump seals have likely failed. (Source: GEH)

Primary Containment: Japanese report functional, NRC assessment is that damage is suspected

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO)

Spent Fuel Pool: Low water level (Source: JAIF, NISA, TEPCO), spraying **ocean water** periodically into SFP (Source: TEPCO 3/29). White smoke being emitted as of 0630 JST on March 29 (Source: NISA 3/29).

Rad Levels: DW 3150 R/hr, torus 124 R/hr (INPO source instruments unknown); Outside plant: 12 mR/hr at main gate (slight trend downward) (Source: MEXT); 100 R/hr debris outside Rx building (covered).

Power: External AC power has reached the unit; checking integrity of equipment before energizing. Lighting operating in Main Control Room.

Unit 4 – (NRC Priority: 4)

Core Status: Offloaded 105 days at time of accident (Source: JAIF, NISA, TEPCO)

Core Cooling: Not necessary (Source: JAIF, NISA, TEPCO)

Primary Containment: Not applicable (Source: JAIF, NISA, TEPCO)

Secondary Containment: Severely damaged from hydrogen explosion. (Source: JAIF, NISA, TEPCO)

Spent Fuel Pool: Low water level, spraying with sea water, hydrogen from the fuel pool exploded, fuel pool is cool heating up very slowly (Source: JAIF, NISA, TEPCO) Temperature is unknown (Source: NISA). Planning to pump fresh water (Source: IAEA 3/28). White smoke confirmed 0630 JST on March 29 (Source: NISA 3/29).

Power: External AC power has reached the unit; checking electrical integrity of equipment before energizing. (Source: JAIF, NISA, TEPCO) Power distribution panels connected (IAEA 3/27)

Unit 5 – (NRC Priority: 5)

Core Status: In vessel (Source: JAIF, NISA, TEPCO), temperature **35°C** (Source: JAIF 3/29)

Core Cooling: Functional (Source: JAIF, NISA, TEPCO)

Primary Containment: Functional (Source: JAIF, NISA, TEPCO)

Secondary Containment: Vent hole drilled in rooftop to avoid hydrogen build up (Source: JAIF, NISA, TEPCO)

Earthquake/Tsunami Status Update

March 30, 2011

0430 EDT

Spent Fuel Pool: Fuel pool cooling functional, RHR pump repaired, temperature 39°C (Source: JAIF 3/29)

Power: External AC power supplying the unit, diesel generators available. (Source: JAIF, NISA, TEPCO)

Unit 6 – (NRC Priority: 6)

Core Status: In vessel (Source: JAIF, NISA, TEPCO), temperature 38°C (Source: JAIF 3/29)

Core Cooling: Functional (Source: JAIF, NISA, TEPCO)

Primary Containment: Functional (Source: JAIF, NISA, TEPCO)

Secondary Containment: Vent hole drilled in rooftop to avoid hydrogen build up (Source: JAIF, NISA, TEPCO)

Spent Fuel Pool: Fuel pool cooling functional, temperature 22.0°C (Source: JAIF 3/29)

Power: External AC power supplying the unit, diesel generators available. (Source: JAIF, NISA, TEPCO)

Common Spent Fuel Pool (NRC priority: 7): 6,000 bundles (Source: GEH); water level maintained at 39°C (Source: IAEA 3/28); normal cooling started 1805 JST March 24 (Source: NISA)

Electrical Power (NRC priority: 7): Offsite power connected to Unit 2 auxiliary transformer / distribution panel; work continues on energizing equipment in Unit 2.

Dry Cask Storage: Visual inspection revealed no problems. All casks are vertical casks manufactured by Hitachi Shipbuilding (Source: RST)

NRC priorities are based on analyses by the Reactor Safety Team. Unit 1 is priority 1 based on the fact that primary containment integrity can still be preserved if the responders take the correct actions to inject to the RPV and Primary containment. Unit 2 is priority 2 because of the apparent damage to primary containment and the other barriers to release. This damage requires continued attention to cool the core and provide water to the primary containment to minimize potential for release. Unit 3 is priority 3, because primary containment may be okay but continued attention is required to pursue core cooling and injection. Unit 4 is priority 4 because progress has been made in addressing the spent fuel pool heat removal requirements and the SFP area has indicated temperatures of less than 100°C.

Other Plants

No new information to report

Acronyms

atm – Atmosphere (unit of pressure)

DW – Drywell

EDG – Emergency Diesel Generator

FW – Feed Water

CS – Reactor Coolant System

RHR – Residual Heat Removal

RPV – Reactor Pressure Vessel

SFP – Spent Fuel Pool

TAF – Top of Active Fuel

March 31, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags, etc.).

TEPCO is planning to install equipment to inert Unit 1 by 31 March.

One train of the Bechtel pumping system is being deployed to the site. First barge to arrive 14:00hrs 31 March JT. Second barge being outfit with a higher capacity transfer pump at Ohama, prior to final move to Fukushima site.

NEI is collecting U.S. nuclear plant environmental monitoring sample data and has made an online database available for viewing by NRC and other agencies.

The RST working to coordinate (GEH, EPRI, INPO, NR, DOE) updated recommendations pertaining to severe accident management strategies. Revisions are being considered in light of suspected Unit 2 and Unit 3 core and containment conditions, and environmental release concerns. RST has coordinated with NRC Office of Research to assess what possible means for an energetic release of fission products might remain, given the extent of damage suspected to have already occurred – results expected in approximately one week.

Vince Holahan supporting PACOM and communicating with PMT and RST as needed.

Path forward on coordination of USG support gaining clarity. US Embassy in Japan plans to consolidate list of support requested by GOJ. USG representatives in Japan working to establish a "requirements validation process" for review and processing official requests from GOJ. Consortium daily calls planned for 20:00hrs EDT to enable Japan Team participation, and conceptually would work from the consolidated list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

Chuck Casto is attempting to sort out some roles & responsibilities issues with other agency representatives that have recently arrived in Japan (e.g, DOE/Sandia NL, Naval Reactors).

U.S. Ambassador in Japan request for a forward looking pessimistic scenario calculation; PMT has discussed with DOE/NIT and with NARAC. Request has been forwarded to White House to gain alignment prior to moving forward. Source term will be developed with RES staff to more accurately reflect changes for decay and events since the beginning of event.

Continued review of DOE measurements (aerial and ground based) in areas around site shows downward trend in exposures. IAEA reports I-131 and Cs-137 levels in soil sampled at litate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. IAEA reports Japan is assessing these results.

DDDD/20

March 31, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported. However, pumping into Unit 2 SPF was suspended due to degraded conditions of a temporary motor driven pump and cracks in a hose prevented the use of fire truck pump.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags, etc.). A Japanese newspaper (AJW) has reported that TEPCO is testing a new way to treat radioactive pollution at the site through the use of a special resin. The resin is a water-soluble synthetic resin used for dust suppressant. The test will be conducted for two weeks.

Inerting of the Unit 1 containment was originally planned for Thursday, 31 March, but has been postponed for several days, while TEPCO continues to evaluate the best means for accomplishing this.

One train of the Bechtel pumping system on site. In addition, the first barge carrying fresh water is also on site. The second barge is being outfitted with a higher capacity transfer pump at Ohama, prior to final move to Fukushima site. J4 stated during the industry consortium call that this barge is being delayed because of problems with a pump.

NEI is collecting U.S. nuclear plant environmental monitoring sample data and has made an online database available for viewing by NRC and other agencies.

The RST has coordinated (with GEH, EPRI, INPO, NR, and DOE) updated recommendations pertaining to severe accident management strategies and issued a revision to the previous assessment document. The revisions address suspected Unit 2 and Unit 3 core and containment conditions, and environmental release concerns. RST is coordinating with the NRC Office of Research to assess what possible means for an energetic release of fission products might remain, given the extent of damage suspected to have already occurred.

Path forward on coordination of USG support gaining clarity. US Embassy in Japan plans to consolidate list of support requested by GOJ. USG representatives in Japan working to establish a "requirements validation process" for review and processing official requests from GOJ. The consortium daily call was held at 20:00hrs EDT to go over consolidating a list of requested material and identify the lead organization for each requested item. The consortium list still needs to be merged with the embassy staff list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

U.S. Ambassador in Japan request for a forward looking pessimistic scenario calculation; PMT has discussed with DOE/NIT and with NARAC. Request has been forwarded to White House to gain alignment prior to moving forward. Source term will be developed with RES staff to more accurately reflect changes for decay and events since the beginning of event. PMT is working with RST to determine an estimate of the water level in the Unit 4 SPF in order to determine the source term.

Continued review of DOE measurements (aerial and ground based) in areas around site shows downward trend in exposures. IAEA reports I-131 and Cs-137 levels in soil sampled at Iitate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. IAEA reports Japan is assessing these results. PMT calculates (RASCAL) that the contamination levels reported would result in exposure that exceeds the annual relocation dose, but not the immediate evacuation dose. The IAEA

DDDD/21

March 31, 2011

2200 EDT

report seems to indicate immediate evacuation was appropriate. PMT staff contacted the IAEA (IEC) and were told that no additional information would be forthcoming. PMT plans to make follow-up calls with the IAEA.

HHS indicated that KI would be shipped out to Japan on April 1st (March 31st USAID call.)

A Japanese newspaper has reported that simulations were done more than 30 years ago at Oak Ridge National Laboratory that reasonably matched conditions at the Fukushima nuclear plant based on a loss of power at the Browns Ferry Nuclear Plant.

March 31, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags, etc.).

TEPCO is planning to install equipment to inert Unit 1 by 31 March.

One train of the Bechtel pumping system is being deployed to the site. First barge to arrive 14:00hrs 31 March JT. Second barge being outfit with a higher capacity transfer pump at Ohama, prior to final move to Fukushima site.

NEI is collecting U.S. nuclear plant environmental monitoring sample data and has made an online database available for viewing by NRC and other agencies.

The RST working to coordinate (GEH, EPRI, INPO, NR, DOE) updated recommendations pertaining to severe accident management strategies. Revisions are being considered in light of suspected Unit 2 and Unit 3 core and containment conditions, and environmental release concerns. RST has coordinated with NRC Office of Research to assess what possible means for an energetic release of fission products might remain, given the extent of damage suspected to have already occurred – results expected in approximately one week.

Vince Holahan supporting PACOM and communicating with PMT and RST as needed.

Path forward on coordination of USG support gaining clarity. US Embassy in Japan plans to consolidate list of support requested by GOJ. USG representatives in Japan working to establish a "requirements validation process" for review and processing official requests from GOJ. Consortium daily calls planned for 20:00hrs EDT to enable Japan Team participation, and conceptually would work from the consolidated list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

Chuck Casto is attempting to sort out some roles & responsibilities issues with other agency representatives that have recently arrived in Japan (e.g, DOE/Sandia NL, Naval Reactors).

U.S. Ambassador in Japan request for a forward looking pessimistic scenario calculation; PMT has discussed with DOE/NIT and with NARAC. Request has been forwarded to White House to gain alignment prior to moving forward. Source term will be developed with RES staff to more accurately reflect changes for decay and events since the beginning of event.

Continued review of DOE measurements (aerial and ground based) in areas around site shows downward trend in exposures. IAEA reports I-131 and Cs-137 levels in soil sampled at Iitate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. IAEA reports Japan is assessing these results. PMT calculates (RASCAL) that the contamination levels reported would result in exposure that exceeds the annual relocation dose (>5 rem vs 2 rem for relocation), but not the immediate evacuation dose (1-5 rem 4 days). The IAEA report seems to indicate immediate evacuation was appropriate. PMT staff contacted the IAEA (IEC) and were told no additional information would be forthcoming.

DDDD/22

OFFICIAL USE ONLY

March 31, 2011

0600 EDT

OFFICIAL USE ONLY

April 1, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported.

No substantive change has been reported in the water in the trenches of Units 1-3 outside the TB.

Supported Chairman's attendance at the Principles Meeting. Some external concern (DoD, NRC) that a diverging perspective may have inadvertently been developed through various communications. This particular issues appears to be addressed, regarding the "current severity and need for expediency" of implementation of the US recommended SAMG actions.

A Japanese newspaper (AJW) has reported that TEPCO is testing a new way to treat radioactive contamination at the site through the use of a special resin. The resin is a water-soluble synthetic resin used for dust suppressant. The test will be conducted for two weeks. *Potential application in mid-April.*

The Unit 1 containment inerting effort has been postponed for several days (originally planned for Thursday 31 March) while TEPCO continues to evaluate the best means for accomplishing this task. *High radiation level in the area is a factor in the delay.*

One train of the Bechtel pumping system is now on the Fukushima site, along with the first fresh water barge. The second barge is being outfitted with a higher capacity transfer pump at Ohama prior to final move to the site. J4 stated during the industry consortium call that this barge is being delayed because of problems with a pump.

The RST (in coordination with GEH, EPRI, INPO, NR, and DOE) issued a revised version of the Severe Accident Management Strategies document. *The revision has been shared with the Japanese counterparts by the Site Team.* The RST also began work on a SF pools assessment and recommendations. *This SFP assessment is being supported by RES (Jason Shaperow/Charlie Tinkler).*

The path forward on the coordination of USG support to Japan is gaining clarity. The US Embassy in Japan plans to consolidate the list of support requested by GOJ. USG representatives in Japan are working to establish a "requirements validation process" for review and processing official GOJ requests. The 31 March consortium call focused on the list of requested material to clarify the lead organization for each item. NRC is working to merge the consortium list with the embassy staff list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

U.S. Ambassador in Japan requested a forward looking pessimistic scenario calculation. The request was forwarded to White House to gain alignment prior to moving forward. *A source term has been provided to NARAC.*

Review of DOE measurements (aerial and ground based) in areas around site show a continued downward trend in exposure rates. IAEA reports I-131 and Cs-137 levels in soil sampled at Iitate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. PMT calculates (RASCAL) that the contamination levels reported would result in exposure that exceeds the annual relocation dose, but not the immediate evacuation dose. The IAEA report seems to indicate immediate evacuation was appropriate. PMT staff contacted the IAEA (IEC) and were told that no additional information would be forthcoming. *PMT plans to make follow-up calls with the IAEA.*

HHS (during a USAID call) indicated that additional KI would be shipped to Japan on 1 April.

DDDD/23

April 1, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported including the water in the trenches of Units 1-3 outside the TB.

The Unit 1 containment inerting effort has been postponed for several days (originally planned for Thursday 31 March, **now not expected to occur before 4/9**) while TEPCO continues to evaluate the best means for accomplishing this task. High radiation level in the area is a factor in the delay.

The White House briefed the States regarding the event on 4/1/11 at 1800hrs. Other Federal agencies participated in the briefing (including DOE, NOAA, EPA, and CDC). The LT and OPA listened in on the call. There were no questions directed at the NRC.

The RST (in coordination with GEH, EPRI, INPO, NR, and DOE) issued a revised version of the Severe Accident Management Strategies document. The revision has been shared with the Japanese counterparts by the Site Team and with the Japanese Embassy by the ET. Additional supporting information and basis is being developed (not shared yet). The RST is supplementing the document with a SF pools assessment and recommendations **focusing on three primary areas: structural, thermal, and criticality**. This SFP assessment is being supported by RES (Jason Shaperow/Charlie Tinkler).

One train of the Bechtel pumping system is now on the Fukushima site, along with the first fresh water barge. The second barge is being outfitted with a higher capacity transfer pump at Onahama port prior to final move to the site. J4 stated during the industry consortium call that this barge is being delayed because of problems with a pump. **The second train is in Australia. The continued need for this train is being verified.**

U.S. Ambassador in Japan requested a forward looking pessimistic scenario calculation. The request was forwarded to White House to gain alignment prior to moving forward. A source term has been provided to NARAC. The source term assumptions include site abandonment for one day, due to some unforeseen event, such as another earthquake. DOE NIT staff suggested that any dose projection performed by NARAC for this source term should be qualified by probabilistic information. At the least, the probability of the wind blowing toward Tokyo should be considered. However, there is no reason to believe the site would be abandoned and efforts to stabilize the reactors continue. **NARAC has not undertaken the analysis. The PMT was informed that NARAC is waiting on a task from the White House before proceeding.**

Review of DOE measurements (aerial and ground based) in areas around the site show a continued downward trend in exposure rates. However, a higher than expected reading (0.25-1.2 mR/hr) at about 40 SW miles was noted.

Industry Consortium call held at 20:00hrs EDT on April 1, 2011 to discuss the Japanese government action items and material request list. A clear process for getting through the military process for military transport is needed. An effort to get a single list that has been reviewed by the Japanese government will be initiated shortly. Having embassy staff participate in future calls will facilitate consolidating the consortium list with the embassy list.

DDDD/24

April 1, 2011

0600 EDT

Briefing Sheet Fukushima Daiichi

No significant changes in plant conditions reported.

Highly radioactive water (approx 100 R/hr) found in a "trench" (pipe and cable chase) outside Unit 2; source of water unclear. TEPCO stated that this water is not flowing into the ocean, though the water will overflow this trench if it rises about 1 meter (trench is 4 meters deep). There is water in the trenches outside of Units 1 and 3 as well. Actions have been taken, or are in progress, to preclude contaminated water in trenches from reaching the ocean (e.g., sandbags).

A Japanese newspaper (AJW) has reported that TEPCO is testing a new way to treat radioactive contamination at the site through the use of a special resin. The resin is a water-soluble synthetic resin used for dust suppressant. The test will be conducted for two weeks. Potential application in mid-April.

The Unit 1 containment inerting effort has been postponed for several days (originally planned for Thursday 31 March) while TEPCO continues to evaluate the best means for accomplishing this task. High radiation level in the area is a factor in the delay.

One train of the Bechtel pumping system is now on the Fukushima site, along with the first fresh water barge. The second barge is being outfitted with a higher capacity transfer pump at Ohama prior to final move to the site. J4 stated during the industry consortium call that this barge is being delayed because of problems with a pump.

NEI is collecting U.S. nuclear plant environmental monitoring sample data and has made an online database available for viewing by NRC and other agencies.

The RST (in coordination with GEH, EPRI, INPO, NR, and DOE) issued a revised version of the Severe Accident Management Strategies document. The revision addresses suspected (unconfirmed) Unit 2 and Unit 3 core and containment conditions. RST is coordinating with the RES to assess what possible means for an energetic release of fission products might remain, given the extent of damage suspected to have already occurred. The RST also began work on a SF pools assessment and recommendations.

The path forward on the coordination of USG support to Japan is gaining clarity. The US Embassy in Japan plans to consolidate the list of support requested by GOJ. USG representatives in Japan are working to establish a "requirements validation process" for review and processing official GOJ requests. The 31 March consortium call focused on the list of requested material to clarify the lead organization for each item. NRC is working to merge the consortium list with the embassy staff list.

IAEA Director General is convening a meeting of the member states regarding the events at Fukushima. Seeking additional insight regarding the date, purpose and expected outcomes from Mark Schaeffer.

U.S. Ambassador in Japan requested a forward looking pessimistic scenario calculation. The request was forwarded to White House to gain alignment prior to moving forward. A source term has been provided to NARAC.

Review of DOE measurements (aerial and ground based) in areas around site show a continued downward trend in exposure rates. IAEA reports I-131 and Cs-137 levels in soil sampled at Iitate village, 40 km NW of Fukushima, which exceeds IAEA operational criteria for evacuation. PMT calculates (RASCAL) that the contamination levels reported would result in exposure that exceeds the annual relocation dose, but not the immediate evacuation dose. The IAEA report seems to indicate immediate evacuation was appropriate. PMT staff contacted the IAEA (IEC) and were told that no additional information would be forthcoming. PMT plans to make follow-up calls with the IAEA.

HHS (during a USAID call) indicated that additional KI would be shipped to Japan on 1 April.

D PDD/25

April 2, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities:

U-1 containment pressure appears **is** decreasing (containment pressure went from 25 psig to 9 psig) **due to leak.**

- The Unit 1 containment inerting effort has been postponed for several days (originally planned for Thursday 31 March, now not expected to occur before 4/9) while TEPCO continues to evaluate the best means for accomplishing this task. High radiation levels in the area are a factor in the delay. TEPCO does not appear receptive to or may not be able to flood containments.
- Japanese are trying to understand when the release will be measured in meters vice kilometers. (per site team status phone call w/C.Castro)
- NSC/OSTP informed us that NSC/OSTP management, **Drs. Fedder and Holdren** determined that the ST need not be run. Previous hypothetical STs and dose calculations have provided contain enough information for the Embassy to determine radiological protective actions and travel advisories, this status has been provided to the Ambassador (by NSC/OSTP). NARAC efforts will not be pursued for this action.
- One train of the Bechtel pumping system is now on the Fukushima site, along with the first fresh water barge. The second barge is being outfitted with a higher capacity transfer pump at Onahama port prior to final move to the site, though this barge is being delayed because of problems with a pump. The second train is in Australia, but the Site Team has confirmed that "there is no need for further trains."

RST Overview and Priorities:

- Working supplemental paper on venting, provide basis working this with GEH, INPO, NR, EPRI & DOE. 1430 phone call to finalize, then start concurrence w/Sr. Mgmt. hope to share w/site tonight.
- Working the SFP assessment paper. Some concern with U-4 SFP Structural integrity
- What are the marginal differences between feed/bleed and flooding (to include venting)? How can we help with maximizing the feed/bleed? (Elmo questions). *INPO & NRC provided initial strawman, ongoing activity seeking others input.*

PMT Overview and Priorities:

- Continue assessment of radiological conditions, dose projections and protective action recommendations.
- Considering an assessment of what are the issues to be addressed in order to return US citizens back to areas beyond the 50 mile EPZ – *DOE has some assets in country to monitor for early warning releases.*
- Review source terms that have been developed for NARAC dose projections. *ST are no longer being reviewed based on OSTP feedback.*

LT Overview and Priorities:

- LT to coordinate 2000 daily Consortium meeting. LT will send updated matrix and meeting agenda to all participants by 1600 hours each day in preparation for 2000 hours phone call.
- *Intend to raise media reports regarding "super" concrete pumper trucks being delivered from SRS, and California.*

DDDD/26

April 4, 2011

0700 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities:

- Unit 1 containment pressure is slowly decreasing (pressure now 7.8 psig) due to unspecified leak (Site team indicates TEPCO estimates 5-30% leakage rate).
- Unit 1 containment inerting planned for 5 April, to be followed by an increase in reactor injection rate.
- One train of the U.S. pumping system is now at Fukushima site, along with two U.S. provided fresh water barges.

RST Overview and Priorities:

- RST working with industry consortium to resolve questions from TEPCO/NISA regarding the technical assumptions for hydrogen concentrations contained in RST assessment revision 1.
- RST issued draft document to industry consortium and site team on possible additional measures to maximize the success of their current feed-and-bleed strategy. Comments expected 4 April day shift.
- RST responding to request from site team to provide criteria regarding what a stable reactor condition (no further energetic events or major radiation releases) looks like.
- Working on the SFP assessment paper to develop more specific strategies and recommendations for the spent fuel pools. Working draft has been provided to industry experts for further development.

PMT Overview and Priorities:

- Japanese authority is now encouraging evacuation between 20 – 30 km.
- As of 1 April, restrictions on the consumption of drinking water by adults in the Fukushima prefecture were lifted. The only remaining restriction on water consumption is for children in Litae.
- TEPCO confirmed dose rates of greater than 100 R/hr from cable storage pit located next to Unit 2 discharge point.
- Continue assessment of radiological conditions, dose projections and protective action recommendations. Available dose information continues to show downward trends.
- The Principals approved the higher number (DHS favored) for acceptable gross $\beta\gamma$ surface contamination on cargo containers and consumer goods - 4 Bq/cm².
- Deployment of EPA RADNET monitors in Japan to help provide confidence of safety in country for U.S. citizens, military, and dependents will be discussed at the Deputy's meeting on 4 April.
- PMT will review paper on issues to be addressed in order to return U.S. citizens back to areas beyond the 50 mile EPZ; NSC has directed that NARAC will not run a source term review because previous runs have bounded the dose projections and there would be minimal additional value.

LT Overview and Priorities:

- IAEA's Incident and Emergency Centre (IEC) is tracking offers for assistance; database posted on ENAC. They need input from countries, including the U.S. LT provided the list to Mark Schaffer in Vienna who will clear release of the list through UNVIE to IAEA.
- Mr. Howard and Mr. Cipullo (U.S. Embassy Tokyo) are DOS "gate keepers" for list of items/assistance officially requested by GOJ. They are working with other Embassies in Japan and are attempting to gain access to IAEA's database.

DDDD/27

April 9, 2011

1500 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities

- No significant changes on status of reactors
- Working on transition plan for staffing at 6 persons.
- Working on transition 6 person team staffing through 4-16 and plan for continued staffing starting 4-17.
- Working to staff an 11-person Site Team.
- Chairman call on 4-9 and 4-10 only at 15:15, TA brief at 8:30 a.m.

RST Overview and Priorities

- Briefing material for Chuck Casto to use with Secretary of State Clinton has been provided. Meeting is anticipated the week of 17 April. PMT/RST providing input.
- RST is considering a revision to its assessment now that inerting has begun. There is currently a revision 1.
- Rev 0 and Rev 1 of the RST Assessment Document have been provided to Vince Holahan. Working Rev 2.
- Need to work with Site team to determine status of how Rev 2 to assessment document ties into or meets needs of "global assessment".

PMT Overview and Priorities

- PMT has lead to develop the "composite" document crafted, input from RST. Covers the 3 issues, 1. Grab n Go criteria, 2. Defining 50-mile EPZ re-entry criteria, and 3. Defining stable conditions for Rx.
- PMT to review a draft long-term habitability document developed by Knolls Atomic Power Laboratories (KAPL)
- Status of providing input to NOAA????

LT Overview and Priorities

- The LT will prepare an executive summary/1-pager to support the "composite" document.
- The next consortium call will be Sunday evening.

DDDD/28

April 13, 2011

2300 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities

- A 6.6 magnitude earthquake occurred on 4/11 causing a LOOP and site evacuation. Water injection for Units 1-3 was disrupted for 50 minutes. MELCOR Analysis indicates potential for further core damage in less than 10 hours.
- A 6.4 magnitude earthquake on 4/12 at 6:38 a.m. (JDT); small fire at distribution switchboard was controlled. No significant changes to status of other Japanese reactors
- GOJ revised the INES Rating of the Fukushima Daiichi Event to Level 7.
- Headquarters Operations Center transition activities continue. Process is being developed for tasking actions to technical staff in the line organizations. Existing tasks to be closed or transferred to new system. Assessment (M. Evans, NSIR lead) of the new process/staffing level will be developed by COB Thursday, 4/14 for Chairman's presentation on Friday, 4/15.
- ET turnover includes: one page briefing sheet, list of major documents and tasker list
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Pete Lyons' (DOE) notes from his Japan Trip (April 5-8, 2011) can be found on the M drive (M:\Japanese Earthquake & Tsunami Response\Japan One Pager\Documents mentioned in One-Pager)
- Agency Sitreps are scaling back to once per day prefer early release; need to determine best time for NRC.
- OPA will host two producers from the CBS 60 Minutes show in the Ops Center on 4/14 around 1 p.m.

RST Overview and Priorities

- RST Assessment (R2) and plant stability determination sent to line organization Assisting the Japan Site Team with the Global Assessment document as needed.
- RST reviewing staff assessment that potential exists for a breach in Units 2 and 3 RPVs. GEH still evaluating and does not believe breach occurred.
- TEPCO verified water level in Unit 4 SFP-2.5m above fuel with rad levels at 8 rem/hr
- Working on response to Congressman Markey's questions

PMT Overview and Priorities

- Provided concurrence and comments to OSTP for technical basis to support Japan Ambassador recommendation to not renew the voluntary authorized departure from Tokyo.
- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results are being reported in DOE SITREPs.
- PACOM request for long term access to NRC expertise addressed by recommending that 24/7 contact with HOO be identified as the contact pathway.

LT Overview and Priorities

- LT working with the Site Team to clarify responsibilities for logistical support and document updates in support of the Consortium calls.
- Since there will not be another Cabinet meeting until Thursday (JDT), it was agreed that the next Consortium call will be Thursday evening at 2000 (EDT) (none on Wednesday)
- The Cabinet meetings in Japan are now being held on just Tuesday/Thursday. The Site Team in Japan will discuss whether or not to move the Consortium calls to align with the evenings that the Cabinet meets. They will let HQ know their preference.

DDDD/29

- Site Team has been experiencing some internet difficulties. To help resolve the issue, the AT& T air cards were reactivated.

OFFICIAL USE ONLY

April 14, 2011

2200 EDT

Briefing Sheet Fukushima Daiichi

ET Overview and Priorities

- Headquarters Operations Center transition activities continue. Process is being developed for tasking actions to technical staff in the line organizations. Existing tasks to be closed or transferred to new system. Assessment (M. Evans, NSIR lead) of the new process/staffing level was discussed in a senior level meeting today with all office POCs.
- ET turnover includes: WebEoc turnover list, one page briefing sheet, list of major documents and tasker list
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Agency Sitreps are scaling back to once per day prefer early release; need to determine best time for NRC.
- OPA hosted two producers from the CBS 60 Minutes show in the Ops Center on 4/14 around 2 p.m.
- Plant and fuel pool conditions are static.

RST Overview and Priorities

- RST Assessment (R2) and plant stability determination sent to line organization
- Assisting the Japan Site Team with the Global Assessment document as needed.
- RST reviewing staff assessment that potential exists for a breach in Units 2 and 3 RPVs. GEH still evaluating and does not believe breach occurred.
- Responded to Congressman Markey's staffer's questions.
- 4/14 NISA TEPCO Meeting: After a long discussion of the sampling results from Unit 4's Spent Fuel Pool, TEPCO concluded that the likelihood of damaged fuel in the pool was low.
- Reviewing interim assessment.
- Reviewing the composite document.

PMT Overview and Priorities

- Provided concurrence and comments to OSTP for technical basis to support Japan Ambassador recommendation to not renew the voluntary authorized departure from Tokyo.
- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- PACOM request for long term access to NRC expertise addressed by recommending that 24/7 contact with HOO be identified as the contact pathway.

LT Overview and Priorities

- LT working with the Site Team to clarify responsibilities for logistical support and document updates in support of the Consortium calls.
- The Cabinet meetings in Japan are now being held on just Tuesday/Thursday.
- To support these meetings, the consortium calls will move to Monday and Wednesday.
- Site Team has been experiencing some internet difficulties. To help resolve the issue, the AT&T air cards were reactivated.
- The next Consortium call will be Monday evening at 2000 (EDT).

DDDD/30

April 16, 2011

2300 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.

RST Overview and Priorities No change since last report

- RST Assessment (R2) document will be lead by Tim Collins. New information from NISA is to be considered for incorporation into the assessment document.
- Assisting the Japan Site Team with the Interim Comprehensive (formerly known as Global Assessment) document as needed.
- Reviewing the composite document.
- GEH evaluation has been received. Information contradicts NRC assessment. RST is reviewing. LT provided to OCA. Task #4706.

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- Cesium values reported in last DOE SITREP were miscalculated as they did not account for mountainous topography of the region. LT to suggest they issue a correction.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. Michelle Hart to follow up April 16.
- PMT, via the line organization, continues to work on the final "Composite" document. Informed Trish Milligan that Bill Ruland is taking efforts that may impact the document.
- NISA is developing criteria for allowable liquid and solid rad-waste to be released into municipal water systems. Document available on 04-21-2011. PACOM, Japan Team, and PMT will review upon receipt.

LT Overview and Priorities

- Mark Shaffer requested support for Under Secretary Horman's (DOS) meeting with Chinese Vice Minister regarding the nuclear situation in Japan. Referred to OIP for guidance.
- The Liaison Team Coordinator is now responsible for the revision and distribution of the NRC Daily Status Update.
- FSME now has the lead on the 2000 HHS call with 50 states and federal partners.
- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP (Kirk Foggie/Steve Bloom are working). Followed-up with an email to Steve and Kirk at 03:00 on 4/16 advising against sharing a document that U.S. States and other international stakeholders have been denied.
- SEN Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? GEH is performing RST provided GEH analysis to LT, and LT forwarded the analysis by email to OCA to follow-up with SEN Markey's staff. ET requested advice from OCA on how to proceed.
- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for **leading** the Consortium calls to the Embassy, since the Embassy now owns, maintains, and distributes the list in advance of each call.

DDDD/3/

April 17, 2011

1500 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Surry Units 1 and 2 under Unusual Event (1855EDT) due to bad weather damaging switchyard causing units to trip. Both units stable and running on EDGs. Ops Ctr and RII monitoring.
- Slides on Interim Comprehensive Safety Assessment, TEPCO "Roadmap", and METI statement sent to Commission Assistants.
- Unit 3 using robot to ascertain radiation, temperature, and damage in plant.
- Ambassador Roos provided Secretary Clinton with NRC quick-look comments on Roadmap.

RST Overview and Priorities

- Continued monitoring of Units.
- RST reviewing the "composite" document, *Guidance for the Re-Entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP*. Comments to be provided to Marty Virgilio by 0900 on 4/18. After Chairman approval, provide to Federal family for review.
- "Interim Comprehensive Assessment" document lead is Tim Collins. RST feedback ongoing.
- Held Consortium Technical call at 11:00 EDT. Nitrogen inerting discussion resulted in RST forwarding three questions to NRC Japan Team for answers (discussions to continue).
- Consortium provided Roadmap for comment.

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. No update over weekend, line organization to touch base with NARAC on Monday.
- PMT, via the line organization (Casper Sun and Sam Keith), continues to work on the final "Composite" document. Due to Chairman by Wed March 20.
- MEXT survey data show no detection of I-131 in all Prefectures, except Fukushima. Further, the air measurement for Fukushima and Tokyo prefectures are 10 and 3 $\mu\text{Sv/hr}$, respectively.

LT Overview and Priorities

- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP is working). OIP was advised this document should not be shared.
- Congressman Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? RST provided GEH analysis to LT, and LT forwarded the analysis by email to OCA to follow-up with Congressman Markey's staff. ET requested advice from OCA on how to proceed.
- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for leading the Consortium calls to the Embassy.

DDDD/32

OFFICIAL USE ONLY

April 17, 2011

1500 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Surry Units 1 and 2 under Unusual Event (1855EDT) due to bad weather damaging switchyard causing units to trip. Both units stable and running on EDGs. Ops Ctr and RII monitoring.
- Slides on Interim Comprehensive Safety Assessment, TEPCO "Roadmap", and METI statement sent to Commission Assistants.
- Unit 3 using robot to ascertain radiation, temperature, and damage in plant.
- Ambassador Roos provided Secretary Clinton with NRC quick-look comments on Roadmap.

RST Overview and Priorities

- Continued monitoring of Units.
- RST reviewing the "composite" document, *Guidance for the Re-Entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP*. Comments to be provided to Marty Virgilio by 0900 on 4/18. After Chairman approval, provide to Federal family for review.
- "Interim Comprehensive Assessment" document lead is Tim Collins. RST feedback ongoing.
- Held Consortium Technical call at 11:00 EDT. Nitrogen inerting discussion resulted in RST forwarding three questions to NRC Japan Team for answers (discussions to continue).
- Consortium provided Roadmap for comment.

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. No update over weekend, line organization to touch base with NARAC on Monday.
- PMT, via the line organization (Casper Sun and Sam Keith), continues to work on the final "Composite" document. Due to Chairman by Wed March 20.
- MEXT survey data show no detection of I-131 in all Prefectures, except Fukushima. Further, the air measurement for Fukushima and Tokyo prefectures are 10 and 3 $\mu\text{Sv/hr}$, respectively.

LT Overview and Priorities

- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP is working). OIP was advised this document should not be shared.
- Congressman Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? RST provided GEH analysis to LT, and LT forwarded the analysis by email to OCA to follow-up with Congressman Markey's staff. ET requested advice from OCA on how to proceed.
- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for leading the Consortium calls to the Embassy.

OFFICIAL USE ONLY

DDDD/33-

OFFICIAL USE ONLY

April 17, 2011

0700 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Surry Units 1 and 2 under Unusual Event (1855EDT) due to bad weather damaging switchyard causing units to trip. Both units stable and running on EDGs. Ops Ctr and RII monitoring.
- Slides on Interim Comprehensive Safety Assessment sent to Commission Assistants.

RST Overview and Priorities

- RST Assessment (R2) document will be lead by Tim Collins. New information from NISA is to be considered for incorporation into the assessment document.
- Assisting the Japan Site Team with the Interim Comprehensive (formerly known as Global Assessment) document as needed.
- Reviewing the composite document.
- Preparing agenda for tomorrow's 11am Consortium Technical call. On the agenda, the inerting question will be discussed (risk vs. benefits), in addition to the MRDRIR flow rate consideration.

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- Cesium values reported in last DOE SITREP were miscalculated as they did not account for mountainous topography of the region. LT emailed DOE to suggest they issue a correction.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. No update over weekend, line organization to touch base with NARAC on Monday.
- PMT, via the line organization, continues to work on the final "Composite" document. Informed Trish Milligan that Bill Ruland is taking efforts that may impact the document. Trish Milligan is determining which NRC organizations should concur on document. Due to M. Virgilio by 0900, Mon April 18. Due to Chairman by Wed March 20. Sent Sam Keith's (CDC) comments to Tony Huffert in Japan. JGP reviewing document for Accident Dose Branch (AADB).
- NISA is developing criteria for allowable liquid and solid rad-waste to be released into municipal water systems. Document available on 04-21-2011. PACOM, Japan Team, and PMT will review upon receipt.

LT Overview and Priorities

- The Liaison Team Coordinator is now responsible for the revision and distribution of the NRC Daily Status Update.
- FSME now has the lead on the 2000 HHS call with 50 states and federal partners.
- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP (Kirk Foggie/Steve Bloom are working). Followed-up with an email to Steve and Kirk at 03:00 on 4/16 advising against sharing a document that U.S. States and other international stakeholders have been denied.
- Congressman Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? GEH is performing RST provided GEH analysis to LT, and LT forwarded the analysis by

OFFICIAL USE ONLY

DDDD/34

email to OCA to follow-up with Congressman Markey's staff. ET requested advice from OCA on how to proceed.

- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for **leading** the Consortium calls to the Embassy, since the Embassy now owns, maintains, and distributes the list in advance of each call.
- LT updated the All Teams Major Documents Status and the Recurring Daily Actions and Calls list.

~~OFFICIAL USE ONLY~~

April 17, 2011

0700 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- ~~Surry Units 1 and 2 under Unusual Event (1855EDT) due to bad weather damaging switchyard causing units to trip. Both units stable and running on EDGs. Ops Ctr and RII monitoring.~~
- ~~Slides on Interim Comprehensive Safety Assessment sent to Commission Assistants.~~

RST Overview and Priorities

- RST Assessment (R2) document will be lead by Tim Collins. New information from NISA is to be considered for incorporation into the assessment document.
- Assisting the Japan Site Team with the Interim Comprehensive (formerly known as Global Assessment) document as needed.
- Reviewing the composite document.
- ~~Preparing agenda for tomorrow's 11am Consortium Technical call. On the agenda, the inerting question will be discussed (risk vs. benefits), in addition to the MRDRIR flow rate consideration.~~

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- Cesium values reported in last DOE SITREP were miscalculated as they did not account for mountainous topography of the region. LT emailed DOE to suggest they issue a correction.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. ~~No update over weekend, line organization to touch base with NARAC on Monday.~~
- PMT, via the line organization, continues to work on the final "Composite" document. Informed Trish Milligan that Bill Ruland is taking efforts that may impact the document. ~~Trish Milligan is determining which NRC organizations should concur on document. Due to M. Virgilio by 0900, Mon April 18. Due to Chairman by Wed March 20.~~
- NISA is developing criteria for allowable liquid and solid rad-waste to be released into municipal water systems. Document available on 04-21-2011. PACOM, Japan Team, and PMT will review upon receipt.

LT Overview and Priorities

- The Liaison Team Coordinator is now responsible for the revision and distribution of the NRC Daily Status Update.
- FSME now has the lead on the 2000 HHS call with 50 states and federal partners.
- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP (Kirk Foggie/Steve Bloom are working). Followed-up with an email to Steve and Kirk at 03:00 on 4/16 advising against sharing a document that U.S. States and other international stakeholders have been denied.
- Congressman Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? GEH is performing RST provided GEH analysis to LT, and LT forwarded the analysis by

DDDD/35

email to OCA to follow-up with Congressman Markey's staff. ET requested advice from OCA on how to proceed.

- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for **leading** the Consortium calls to the Embassy, since the Embassy now owns, maintains, and distributes the list in advance of each call.
- LT updated the All Teams Major Documents Status and the Recurring Daily Actions and Calls list.

~~OFFICIAL USE ONLY~~

April 17, 2011

1500 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEoc turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- Sen. Mikulski will visit NRC Monday, April 18 at 10:00 a.m. Will meet with Chairman for 30 minutes, then senior officials, then Ops Center for short tour. Will then hold press conference – EDO lead to prepare presentation.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Surry Units 1 and 2 under Unusual Event (1855EDT) due to bad weather damaging switchyard causing units to trip. Both units stable and running on EDGs. Ops Ctr and RII monitoring.
- Slides on Interim Comprehensive Safety Assessment, TEPCO "Roadmap", and METI statement sent to Commission Assistants.
- Unit 3 using robot to ascertain radiation, temperature, and damage in plant.
- Ambassador Roos provided Secretary Clinton with NRC quick-look comments on Roadmap.

RST Overview and Priorities

- Continued monitoring of Units.
- RST reviewing the "composite" document, *Guidance for the Re-Entry and Return of US Citizens to Areas Around Fukushima Daiichi NPP*. Comments to be provided to Marty Virgilio by 0900 on 4/18. After Chairman approval, provide to Federal family for review.
- "Interim Comprehensive Assessment" document lead is Tim Collins. RST feedback ongoing.
- Held Consortium Technical call at 11:00 EDT. Nitrogen inerting discussion resulted in RST forwarding three questions to NRC Japan Team for answers (discussions to continue).
- Consortium provided Roadmap for comment.

PMT Overview and Priorities

- Supporting request from Japan Team to provide assistance for determining intermediate phase ingestion pathway dose determination. (Task #4701, request sent to NRR POC). Japan Team also reaching back to DOE as PAG results is being reported in DOE SITREPs.
- PMT, via the line organization is supporting NARAC in updating source terms, and reviewing new source terms. No update over weekend, line organization to touch base with NARAC on Monday.
- PMT, via the line organization (Casper Sun and Sam Keith), continues to work on the final "Composite" document. Due to Chairman by Wed March 20.
- MEXT survey data show no detection of I-131 in all Prefectures, except Fukushima. Further, the air measurement for Fukushima and Tokyo prefectures are 10 and 3 $\mu\text{Sv/hr}$, respectively.

LT Overview and Priorities

- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP is working). OIP was advised this document should not be shared.
- Congressman Markey's office: One outstanding question "was there a pressure vessel rupture on unit 2"? RST provided GEH analysis to LT, and LT forwarded the analysis by email to OCA to follow-up with Congressman Markey's staff. ET requested advice from OCA on how to proceed.
- LT requested Steve Reynolds of the Japan Site Team to facilitate transferring the role for leading the Consortium calls to the Embassy.

DADD/36

USNRC Emergency Operations Center Status Update

April 20, 2011

**Earthquake / Tsunami Status Update
Compiled by Executive Briefing Team**

This report includes NRC's current understanding of the ongoing situation in Japan.

Fukushima Daiichi

The Japanese national government has encouraged evacuation for local residents in some areas within the 20-30 km of the site boundary. This is a slight change from the previous voluntary evacuation with shelter in place for the 20-30 km zone. IAEA confirms a no-fly zone out to 30 km around the Fukushima Daiichi plant. The Japanese government announced that it is revising the emergency plans for Fukushima Daiichi to establish potential evacuation zones in case of another emergency. The Chief Cabinet Secretary indicated this is being done because plant conditions are not yet stable.

On April 12, 2011, NISA raised the rating for the events at the Fukushima Daiichi site on the International Nuclear and Radiological Event Scale (INES) from 5, "Accident with Wider Consequences," to 7, "Major Accident," citing calculations by both NISA and the Nuclear Safety Commission of Japan (NSC) of radioactive materials released from the Fukushima Daiichi reactors. This new provisional rating considers the accidents that occurred at Units 1, 2, and 3 as a single event on INES. The provisional INES level 3 rating assigned for Unit 4 still applies. NISA notes that while an INES rating of 7 is the same as that of the Chernobyl accident, their current estimated amount of radioactive materials released is approximately 10% of the amount from the Chernobyl accident. (Source: NISA and IAEA 4/12)

Groundwater sampling near Units 1 & 2 showed increased radiation levels 6-38 times greater than previous measurements, based on isotopic analysis. Groundwater flow leads the ocean (Source: Site Team 4/15). TEPCO completed pumping out low-level liquid radwaste from the common-area radwaste building and applied sealant. TEPCO is transferring highly radioactive water from the Unit 2 turbine building basement to the radwaste facility; expecting 26 days to complete. (Source: Site Team 4/19).

TEPCO expects to have a tanker barge available by mid-May that will be able to hold 27,000 Tons of liquid radwaste, giving them a total of 60,400 Tons of liquid radwaste storage capacity. TEPCO estimates that a total of 50,000 Tons of highly contaminated liquid radwaste will have been generated onsite by the end of May. (Source: Site Team 4/16).

As of April 14 at 21:30 UTC white smoke was still observed coming from Units 2, 3 and 4 (Source: IAEA 4/16).

On April 17, TEPCO released a document titled "*Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.*" This document sets out a two-phase action plan to bring "the reactors and spent fuel pools to a stable cooling condition and [mitigate] the release of radioactive materials" This plan envisions actions over the next six to nine months. (Source: TEPCO 4/17). Staff is currently reviewing the document and seeking Consortium input.

DDDD/37

Unit 1 drywell continues to fill with water and is expected to reach TAF by April 27. Debris cleanup continues and Zeolite is being placed around site to absorb Cesium. (Source: Site Team 4/17).

TEPCO is considering adding boric acid to the core cooling water. (4/19)

TEPCO is considering: 1) entombment of the Unit 2 reactor building to stop leakage believed to be emanating from the suppression pool, 2) trying to ascertain whether the water in the Unit 2 basement may be coming from another unit, 3) requesting US assistance and expertise with processing high level radwaste, and 4) inerting Unit 3 drywell however difficult due to high rad levels and debris in the area.

STATUS as of 1200 EDT, April 20, 2011 (0100 Japan, April 21)

Unit 1 – (NRC Priority: 1)

Core Status: Estimated 70% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV level $\frac{1}{2}$ TAF (NISA 4/8). The volume of sea water injected to cool the core has left enough salt to fill the lower plenum to the core plate (Source: GEH, US Industry). Vessel temperatures 115.1°C at bottom drain, 169.0°C at FW nozzle (Source: IAEA 4/19). RPV pressure (Ch A: 62 psig, Ch B: 141 psig) (Source: TEPCO 4/16).

Core Cooling: Fresh water injection via temporary electrical pump to FW line at 26.4 gpm (Source: Site Team 4/14). Recirculation pump seals have likely failed (Source: GEH). Stuck open SRV (Source: Site Team, confirmed by TEPCO 4/7). Began injecting nitrogen (N₂) to drywell at 0130 Japan time on April 7 (Source: IAEA, 4/7).

Primary Containment: Damage suspected, slow leakage, DW pressure increased to 13 psig, torus pressure at 10 psig and slowly increasing from N₂ injection (Source: IAEA 4/16).

Secondary Containment: Severely damaged (hydrogen explosion)

Spent Fuel Pool: Temperature is at 36°C (Source: IAEA 4/16, uncertain, overhead thermography). Periodic freshwater spray using concrete pump truck (Source: DOE 4/3). SFP has 292 assemblies with last transfer of 64 assemblies from reactor to SFP in March 2010 (Source: GEH 4/2).

Rad Levels: DW: 6830 R/hr (Source: NISA 4/8), Reported instrument failure (Source: INPO 4/8), Torus: 1040 R/hr (Source: TEPCO 4/12), Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF).

Power: On external power (Source: NISA); equipment testing in progress (Source: JAIF, NISA, TEPCO).

Unit 2 – (NRC Priority: 2)

Core Status: Estimated 30% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV Level $\frac{3}{5}$ TAF (NISA 4/8) Bottom head temperature 115.3°C (Source: NISA 4/16), feed water nozzle temperature 136.5°C (Source: IAEA 4/19). RPV pressure: Ch A: -3.3 psig, Ch B: -2.6 psig (Source: TEPCO 4/13). Stabilized at atmospheric pressure since 3/18/11 (Source: IAEA 4/9). May begin injecting nitrogen on April 20, 2011 (Source: NHK).

Core Cooling: Fresh water injecting at 29.5 gpm (Source: IAEA 4/6).

Primary Containment: Damage suspected (Source: JAIF, NISA, TEPCO). DW Pressure: -1.6 psig (Source: TEPCO 4/13).

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO), blowout panels removed from side of reactor building to reduce hydrogen buildup (Source: visual).
Spent Fuel Pool: Full fresh water injection continuing (Source: IAEA 4/5), fuel pool temperature 41°C (Source: IAEA 4/18). 47 Tons of fresh water added 4/19 (Source: Site Team 4/20).
Rad Levels: DW: 2810 R/hr (Source: TEPCO 4/12); Torus 68.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF). The leak of contaminated water into the ocean has been stopped (Source: Multiple Reports).
Power: On offsite power (Source: NISA 4/3)

Unit 3 – (NRC Priority: 3)

Core Status: Estimated 25% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). Bottom head temperature 110.3°C, FW nozzle temperature: 102.2°C (Source: IAEA 4/19). RPV pressure Ch A: -4.4 psig, Ch B: -12.4 psig (Source: NISA 4/16). RPV level ~2/5 TAF (Source: NISA 4/8). Stabilized at atmospheric pressure since 3/22/11 (Source: IAEA 4/9).
Core Cooling: Freshwater injection via fire line at 30.8 gpm via temporary electrical pump (Source: Site Team 4/14). Recirculation pump seals have likely failed (Source: GEH).
Primary Containment: Damage suspected. Drywell Pressure: 0.6 psig and Torus Pressure 9.8 psig (Source: TEPCO 4/12). Drywell Temperature: 270°C (Site Team 4/16). Nitrogen injection delayed due to problems accessing equipment (Source: NHK).
Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO)
Spent Fuel Pool: Low water level. Temperature 59°C estimated (Source: IAEA 4/16, uncertain overhead thermography from 4/15). Fresh water sprayed via concrete pump on 4/8 (Source: TEPCO 4/9). ~30 Tons fresh water added 4/18. (Site Team 4/20).
Rad Levels: DW: 1710 R/hr, Torus: 67.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4.0 mR/hr at west gate (very slight trend downward) (Source: JAIF); 100 R/hr debris outside Rx building (covered).
Power: On offsite power (Source: NISA 4/3)

Unit 4 – (NRC Priority: 4)

Core Status: Offloaded 105 days at time of accident (Source: JAIF, NISA, TEPCO).
Core Cooling: Not necessary (Source: JAIF, NISA, TEPCO).
Primary Containment: Not applicable (Source: JAIF, NISA, TEPCO).
Secondary Containment: Severely damaged from hydrogen explosion (Source: JAIF, NISA, TEPCO).
Spent Fuel Pool: Temperature 37°C (Source: JAIF 4/12, uncertain, overhead thermography). Freshwater added via concrete pump 4/9, additional spraying as needed (Source: TEPCO 4/9). 100 Tons fresh water added 4/19; 40 tons added 4/18 (Source: Site Team 4/20). Fresh water spraying restarted by concrete pump truck on 4/15 (Source: IAEA 4/16). Water level ~2.5m above top of fuel (Source: TEPCO, uncertain). The extent of fuel damage, if any, is uncertain. Analyzed isotope levels from the pool may not be indicative of the actual state of fuel in the pool and may be more indicative of the isotopes from the water sprayed into the pool. Further sampling has been suggested by the NRC Site Team, and TEPCO is considering.
Power: On offsite AC power (Source: DOE 4/3)

Unit 5 – (NRC Priority: 5)

Unit 5 remains in stable cold shutdown, with offsite power.

Unit 6 – (NRC Priority: 6)

Unit 6 remains in stable cold shutdown, with offsite power.

NRC priorities are based on analyses by the Reactor Safety Team. Unit 1 is priority 1 based on the belief that primary containment functionality, though degraded, can still be preserved if the responders take actions to inject to the RPV and primary containment. Unit 2 is priority 2 because of the apparent damage to primary containment and the other barriers to release. This damage requires continued attention to cool the core and provide water to the primary containment to minimize potential for release. Unit 3 is priority 3 because primary containment may be nominally functional but continued attention is required to pursue core cooling and injection.

Other Plants

There was no reported impact from the April 11, 2011 earthquake on other facilities.

USNRC Emergency Operations Center Status Update

April 21, 2011

**Earthquake / Tsunami Status Update
Compiled by Executive Briefing Team**

**This report includes NRC's current understanding of the ongoing situation in Japan.
Historical and background information can be found in past reports.**

NRC's Top Priorities

- 1) Continued assessment of plant and radiological conditions and protective action recommendations.
 - 2) Providing technical assistance to the US Ambassador in Japan and the Japanese Government.
 - 3) Coordination with other US Departments and Agencies, the Institute of Nuclear Power Operations (INPO), Bechtel, General Electric Hitachi (GEH), Tokyo Electric Power Company (TEPCO), and the Japanese military.
-

Status

At 0946 EST, March 11, 2011, the NRC entered Monitoring Mode, and the agency continues to monitor the unfolding events in Japan. In that the situation is not yet stable, NRC continues its 24 hour support in headquarters and a fully-engaged site team in Japan. During the week of April 11th, NRC increased the size and adjusted the skill set of its site team to better support the work activities in Japan. A core team of managers and experts continue to staff the Headquarters Operations Center on a 24 hour basis.

Press releases related to the situation in Japan can be found online at:
<http://www.nrc.gov/reading-rm/doc-collections/news/2011/>.

The current protective action recommendation for US citizens residing within 50 miles (80 km) of the Fukushima Daiichi site is to evacuate. The NRC continues to evaluate this recommendation. Per NHK, Prime Minister Naoto Kan is expected to announce his government will impose an order to prohibit people from entering an area within 20 km radius (12 mile radius) of the Fukushima Daiichi NPP.

To account for current plant conditions (e.g., inerting Unit 1 drywell and status of the fuel in the reactor vessels), the NRC Reactor Safety Team (RST) is updating an assessment and recommendations for the Fukushima Daiichi units based on the severe accident management guidelines (SAMGs). The initial assessment included the input and concurrence of INPO, GEH, Electric Power Research Institute EPRI, Naval Reactors, and US Department of Energy Office of Nuclear Energy (DOE/NE) and was provided to the NRC Site Team in Japan.

DDDD 138

The US DOE and the US Environmental Protection Agency are the Federal communicators for questions regarding possible domestic impacts from the events in Japan and on domestic monitoring.

The Commission established a senior-level agency task force to conduct a systematic review of NRC processes and regulations with specific near-term and long-term objectives.

Status of NRC Licensee and Agreement State Facilities

Air sample and standing water sample results from US nuclear plant licensees have been entered into a password protected database established by the Nuclear Energy Institute (NEI). NRC and Federal partners have access to the plant data.

Industry Consortium / Contractor Activities

The industry consortium is composed of government and industry representatives working to respond to Government of Japan (GoJ) requests for material and assistance. Consortium calls are typically held daily on technical issues at 11:00 EDT and are held at 2000 EDT on days agreed to by the consortium for topics including supply needs by GoJ.

Current Understanding of Japanese Facilities

(This information is compiled from the NRC in-country team, TEPCO press releases, Japanese Nuclear and Industrial Safety Agency (NISA) press releases, Japan Atomic Industrial Forum (JAIF) compiled data and assessments, IAEA information releases, Federation of Electric Power Companies of Japan, World Association of Nuclear Operators, DOE and others.)

Fukushima Daiichi

The Japanese national government has encouraged evacuation for local residents in some areas within the 20-30 km of the site boundary. This is a slight change from the previous voluntary evacuation with shelter in place for the 20-30 km zone. IAEA confirms a no-fly zone out to 30 km around the Fukushima Daiichi plant. The Japanese government announced that it is revising the emergency plans for Fukushima Daiichi to establish potential evacuation zones in case of another emergency. The Chief Cabinet Secretary indicated this is being done because plant conditions are not yet stable.

On April 12, 2011, NISA raised the rating for the events at the Fukushima Daiichi site on the International Nuclear and Radiological Event Scale (INES) from 5, "Accident with Wider Consequences," to 7, "Major Accident," citing calculations by both NISA and the Nuclear Safety Commission of Japan (NSC) of radioactive materials released from the Fukushima Daiichi reactors. This new provisional rating considers the accidents that occurred at Units 1, 2, and 3 as a single event on INES. The provisional INES level 3 rating assigned for Unit 4 still applies. NISA notes that while an INES rating of 7 is the same as that of the Chernobyl accident, their current estimated amount of radioactive materials released is approximately 10% of the amount from the Chernobyl accident. (Source: NISA and IAEA 4/12)

Earthquake/Tsunami Status Update

April 21, 2011

1200 EDT

Groundwater sampling near Units 1 & 2 showed increased radiation levels 6-38 times greater than previous measurements, based on isotopic analysis. Groundwater flow leads the ocean (Source: Site Team 4/15). TEPCO completed pumping out low-level liquid radwaste from the common-area radwaste building and applied sealant. TEPCO is transferring highly radioactive water from the Unit 2 turbine building basement to the radwaste facility; expecting 26 days to complete. (Source: Site Team 4/19).

TEPCO expects to have a tanker barge available by mid-May that will be able to hold 27,000 Tons of liquid radwaste, giving them a total of 60,400 Tons of liquid radwaste storage capacity. TEPCO estimates that a total of 50,000 Tons of highly contaminated liquid radwaste will have been generated onsite by the end of May. (Source: Site Team 4/16).

As of April 14 at 21:30 UTC white smoke was still observed coming from Units 2, 3 and 4 (Source: IAEA 4/16).

On April 17, TEPCO released a document titled "*Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.*" This document sets out a two-phase action plan to bring "the reactors and spent fuel pools to a stable cooling condition and [mitigate] the release of radioactive materials" This plan envisions actions over the next six to nine months. (Source: TEPCO 4/17). Staff is currently reviewing the document and seeking Consortium input.

Unit 1 drywell continues to fill with water and is expected to reach TAF by April 27. Debris cleanup continues and Zeolite is being placed around site to absorb Cesium. (Source: Site Team 4/17).

TEPCO is considering adding boric acid to the core cooling water. (4/19)

TEPCO is considering: 1) entombment of the Unit 2 reactor building to stop leakage believed to be emanating from the suppression pool, 2) trying to ascertain whether the water in the Unit 2 basement may be coming from another unit, 3) requesting US assistance and expertise with processing high level radwaste, and 4) inerting Unit 3 drywell however difficult due to high rad levels and debris in the area.

~~STATUS as of 1200 EDT, April 21, 2011 (0100 Japan, April 22)~~

Unit 1 – (NRC Priority: 1)

Core Status: Estimated 70% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV level ½ TAF (NISA 4/8). The volume of sea water injected to cool the core has left enough salt to fill the lower plenum to the core plate (Source: GEH, US Industry). Vessel temperatures 115.1°C at bottom drain, 169.0°C at FW nozzle (Source: IAEA 4/19). RPV pressure (Ch A: 62 psig, Ch B: 141 psig) (Source: TEPCO 4/16).

Core Cooling: Fresh water injection via temporary electrical pump to FW line at 26.4 gpm (Source: Site Team 4/14). Recirculation pump seals have likely failed (Source: GEH). Stuck open SRV (Source: Site Team, confirmed by TEPCO 4/7). Began injecting nitrogen (N₂) to drywell at 0130 Japan time on April 7 (Source: IAEA, 4/7).

Primary Containment: Damage suspected, slow leakage, DW pressure increased to 13 psig, torus pressure at 10 psig and slowly increasing from N₂ injection (Source: IAEA 4/16).

Secondary Containment: Severely damaged (hydrogen explosion)

Earthquake/Tsunami Status Update

April 21, 2011

1200 EDT

Spent Fuel Pool: Temperature is at 36°C (Source: IAEA 4/16, uncertain, overhead thermography). Periodic freshwater spray using concrete pump truck (Source: DOE 4/3). SFP has 292 assemblies with last transfer of 64 assemblies from reactor to SFP in March 2010 (Source: GEH 4/2).

Rad Levels: DW: 6830 R/hr (Source: NISA 4/8), Reported instrument failure (Source: INPO 4/8), Torus: 1040 R/hr (Source: TEPCO 4/12), Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF).

Power: On external power (Source: NISA); equipment testing in progress (Source: JAIF, NISA, TEPCO).

Unit 2 – (NRC Priority: 2)

Core Status: Estimated 30% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV Level 3/5 TAF (NISA 4/8) Bottom head temperature 115.3°C (Source: NISA 4/16), feed water nozzle temperature 136.5°C (Source: IAEA 4/19). RPV pressure: Ch A: -3.3 psig, Ch B: -2.6 psig (Source: TEPCO 4/13). Stabilized at atmospheric pressure since 3/18/11 (Source: IAEA 4/9). May begin injecting nitrogen on April 20, 2011 (Source: NHK).

Core Cooling: Fresh water injecting at 29.5 gpm (Source: IAEA 4/6).

Primary Containment: Damage suspected (Source: JAIF, NISA, TEPCO). DW Pressure: -1.6 psig (Source: TEPCO 4/13).

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO), blowout panels removed from side of reactor building to reduce hydrogen buildup (Source: visual).

Spent Fuel Pool: Full fresh water injection continuing (Source: IAEA 4/5), fuel pool temperature 41°C (Source: IAEA 4/18). 47 Tons of fresh water added 4/19 (Source: Site Team 4/20).

Rad Levels: DW: 2810 R/hr (Source: TEPCO 4/12); Torus 68.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF). The leak of contaminated water into the ocean has been stopped (Source: Multiple Reports).

Power: On offsite power (Source: NISA 4/3)

Unit 3 – (NRC Priority: 3)

Core Status: Estimated 25% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). Bottom head temperature 110.3°C, FW nozzle temperature: 102.2°C (Source: IAEA 4/19). RPV pressure Ch A: -4.4 psig, Ch B: -12.4 psig (Source: NISA 4/16). RPV level ~2/5 TAF (Source: NISA 4/8). Stabilized at atmospheric pressure since 3/22/11 (Source: IAEA 4/9).

Core Cooling: Freshwater injection via fire line at 30.8 gpm via temporary electrical pump (Source: Site Team 4/14). Recirculation pump seals have likely failed (Source: GEH).

Primary Containment: Damage suspected. Drywell Pressure: 0.6 psig and Torus Pressure 9.8 psig (Source: TEPCO 4/12). Drywell Temperature: 270°C (Site Team 4/16). Nitrogen injection delayed due to problems accessing equipment (Source: NHK).

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO)

Spent Fuel Pool: Low water level. Temperature 59°C estimated (Source: IAEA 4/16, uncertain overhead thermography from 4/15). Fresh water sprayed via concrete pump on 4/8 (Source: TEPCO 4/9). ~30 Tons fresh water added 4/18. (Site Team 4/20).

Rad Levels: DW: 1710 R/hr, Torus: 67.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4.0 mR/hr at west gate (very slight trend downward) (Source: JAIF); 100 R/hr debris outside Rx building (covered).

Power: On offsite power (Source: NISA 4/3)

Earthquake/Tsunami Status Update

April 21, 2011

1200 EDT

Unit 4 – (NRC Priority: 4)

Core Status: Offloaded 105 days at time of accident (Source: JAIF, NISA, TEPCO).

Core Cooling: Not necessary (Source: JAIF, NISA, TEPCO).

Primary Containment: Not applicable (Source: JAIF, NISA, TEPCO).

Secondary Containment: Severely damaged from hydrogen explosion (Source: JAIF, NISA, TEPCO).

Spent Fuel Pool: Temperature 37°C (Source: JAIF 4/12, uncertain, overhead thermography).

Freshwater added via concrete pump 4/9, additional spraying as needed (Source: TEPCO 4/9). 100 Tons fresh water added 4/19; 40 tons added 4/18 (Source: Site Team 4/20). Fresh water spraying restarted by concrete pump truck on 4/15 (Source: IAEA 4/16). Water level ~2.5m above top of fuel (Source: TEPCO, uncertain). The extent of fuel damage, if any, is uncertain. Analyzed isotope levels from the pool may not be indicative of the actual state of fuel in the pool and may be more indicative of the isotopes from the water sprayed into the pool. Further sampling has been suggested by the NRC Site Team, and TEPCO is considering.

Power: On offsite AC power (Source: DOE 4/3)

Unit 5 – (NRC Priority: 5)

Unit 5 remains in stable cold shutdown, with offsite power.

Unit 6 – (NRC Priority: 6)

Unit 6 remains in stable cold shutdown, with offsite power.

NRC priorities are based on analyses by the Reactor Safety Team. Unit 1 is priority 1 based on the belief that primary containment functionality, though degraded, can still be preserved if the responders take actions to inject to the RPV and primary containment. Unit 2 is priority 2 because of the apparent damage to primary containment and the other barriers to release. This damage requires continued attention to cool the core and provide water to the primary containment to minimize potential for release. Unit 3 is priority 3 because primary containment may be nominally functional but continued attention is required to pursue core cooling and injection.

Other Plants

There was no reported impact from the April 11, 2011 earthquake on other facilities.

Protective Measures Team (PMT) Update

The PMT continues to assess available dose rate information from DOE AMS data, the US Navy, TEPCO, and MEXT.

The PMT is the NRC Headquarters Operations Center point of contact for a "composite" document that takes conditions such as plant stability, radiological conditions, and local infrastructure into consideration in order to re-evaluate the current 50-mile evacuation recommendations. The PMT will vet this document through Federal partners. The lead within NRC is the Office of Nuclear Security and Incident Response (NSIR) with NRR Support.

The PMT is coordinating a request from NARAC to review source terms and will assign line organization staff to fulfill this request.

As requested by the Japan Site Team, the PMT is coordinating the review of Japan's emergency preparedness, planning and programs to identify differences between the U.S. and Japan approaches to protective measures.

On April 19, 2011, DOE stated in their 0600 Japan Earthquake Response Situation Report that a remote controlled robot investigated Unit 1 and 3 Reactor Buildings. Radiation readings reported as high as 57 milliSieverts (5.7Rem/hour). (Source: DOE 4/19).

On April 20, 2011, DOE stated in their 0600 Japan Earthquake Response Situation Report that all aerial measurements at US facilities in Japan through April 19 were less than 32 μ R/hr – a level that poses no known health risk. (Source: DOE 4/17).

International Response

- The US Embassy in Japan is preparing for the return shortly of US citizens who voluntarily relocated from the Tokyo area and has issued a travel alert on the subject that can be found online at: <http://japan.usembassy.gov/e/acs/tacs-alert20110415.html>.
- The IAEA has announced that it will hold a high-level conference on preliminary lessons learned from Fukushima on June 20-24, 2011. Information is available at www.iaea.org.
- NRC has daily teleconferences with the United Kingdom's Health and Safety Executive, the Canadian Nuclear Safety Commission, and the French Nuclear Safety Authority. IAEA and Finland also participate intermittently.
- An Institute of Nuclear Power Operations (INPO) staff member in Tokyo is coordinating with US Government staff at the US Embassy concerning equipment requests.

Reference

Units

1 rem (rem) = 1,000 millirem (mrem)

1 Sievert (Sv) = 1,000 milliSieverts (mSv) = 1,000,000 microsieverts (μ Sv)

1 rem = 0.01 Sv = 10 mSv

1 Sv = 100 rem

$T_F = (9/5 \times T_C + 32)$

1Kilometer (km) = 0.62 mile (mi)

Reactor Abbreviations

atm – Atmosphere (unit of pressure)

DW – Drywell

FW – Feed Water

gpm – gallons per minute

RHR – Residual Heat Removal

SFP – Spent Fuel Pool

SRV – Safety Relief Valve

TAF – Top of Active Fuel

RPV – Reactor Pressure Vessel

OFFICIAL USE ONLY

April 22, 2011

0700 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Coordinated key taskers with NRC Japan Team Lead to ensure priority and clarity of deliverables. NRC detailed comment of TEPCO Roadmap remains top priority with 4/22 draft completion and 4/25 delivery to Ambassador by Site Team Lead.
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Deciding on watchstanding or "on-call" over upcoming weekend. Japan Site Team continues to support.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Supported 20:00 Consortium call. Items 33 and 34 were linked to the Task Tracker items. Additional clarity was requested for Item 35. Japan Site Team RST and the Ops Center RST concur that these items should not be tracked on the larger consortium and should be moved to the technical consortium to resolve.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Line Organization comment by COB April 26, and release to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- Request from Japan PMT to coordinate review of two documents, Japan Regs for emergency preparedness, planning and programs, for how they compare to U.S. PAGs. Review comments are requested by Friday, 4/22/11 - task #4892 to NSIR.
- Request from Japan PMT to evaluate "Waste Container" and radionuclide in MOX sludge.
- Second-look the released source term and assess the difference, update if required.

LT Overview and Priorities

- ~~Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP is working). OIP was advised this document should not be shared. Concerns with any plan to share the SitRep with the Chinese government are: 1) U.S. States have been denied access to this document, and 2) If we share the document with the Chinese government, this precedent could obligate us to honor requests from other international stakeholders as well. As we learned with the NY Times article, we need to safeguard against leaks of OUC information.~~
- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) - U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US -Japan Economic Strategy Institute in Tokyo to help them obtain acceptable shipping containers for radioactive materials. Forwarded the request for

OFFICIAL USE ONLY

DDDD/39

information to Helen Peterson in the Foreign Commercial Services Unit of our Embassy in Japan as requested.

~~OFFICIAL USE ONLY~~

April 22, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- NRC reviewed and will provide to Japan Site Team Lead detailed comments on the TEPCO Roadmap on 4/22. This assessment incorporated comments received from the Consortium. It will be provided to the Japan Site Team Lead upon clearance from M. Virgilio (briefing scheduled for 1500 today).
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Decision approved to suspend monitoring by Operations Center 24/7 over the weekend and resume watch-standing on Monday, April 25 at 0700. However, staff support must be "on-call" over upcoming weekend to support Japan Site Team as needed. Japan Site Team will be available, but will take a breather, too.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve provide final draft apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Receive Line Organization comment by COB Tuesday April 26, and release document to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- PMT Japan reached back to PMT HQ to raise awareness of the "Waste Container" and "radioactive MOX sludge" causing access problems issues on site. No action at this time.
- On 4/21 Commission TAs inquired if any action is being taken to modify the source term. NARAC has been asked to perform more runs with updated release rates re-created from the accidents.

LT Overview and Priorities

- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) - U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US - Japan Economic Strategy Institute in Tokyo requested to help in obtaining them obtain acceptable shipping containers for radioactive materials. Forwarded the request for information to Helen Peterson, in the Foreign Commercial Services Unit of our US Embassy in Japan as requested has this for action.
- Next Casto call set for 0830 (EDT) Monday 4/25

DDDD140

April 22, 2011

0700 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Coordinated key taskers with NRC Japan Team Lead to ensure priority and clarity of deliverables. NRC detailed comment of TEPCO Roadmap remains top priority with 4/22 draft completion and 4/25 delivery to Ambassador by Site Team Lead.
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Deciding on watchstanding or "on-call" over upcoming weekend. Japan Site Team continues to support.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Supported 20:00 Consortium call. Items 33 and 34 were linked to the Task Tracker items. Additional clarity was requested for Item 35. Japan Site Team RST and the Ops Center RST concur that these items should not be tracked on the larger consortium and should be moved to the technical consortium to resolve.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Line Organization comment by COB April 26, and release to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- Request from Japan PMT to coordinate review of two documents, Japan Regs for emergency preparedness, planning and programs, for how they compare to U.S. PAGs. Review comments are requested by Friday, 4/22/11 - task #4892 to NSIR.
- Request from Japan PMT to evaluate "Waste Container" and radionuclide in MOX sludge.
- Second-look the released source term and assess the difference, update if required.

LT Overview and Priorities

- Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government, OIP is working). OIP was advised this document should not be shared. Concerns with any plan to share the SitRep with the Chinese government are: 1) U.S. States have been denied access to this document, and 2) If we share the document with the Chinese government, this precedent could obligate us to honor requests from other international stakeholders as well. As we learned with the NY Times article, we need to safeguard against leaks of OIU information.
- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) - U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US -Japan Economic Strategy Institute in Tokyo to help them obtain acceptable shipping containers for radioactive materials.

DDDD/41

April 22, 2011

1500 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Coordinated key taskers with NRC Japan Team Lead to ensure priority and clarity of deliverables. NRC detailed comment of TEPCO Roadmap remains top priority with 4/22 draft completion and 4/25 delivery to Ambassador by Site Team Lead.
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Deciding on watchstanding or "on-call" over upcoming weekend. Japan Site Team continues to support.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Supported 20:00 Consortium call. Items 33 and 34 were linked to the Task Tracker items. ~~Additional clarity was requested for Item 35 was closed out in the Assessment Rev 1.~~ Japan Site Team RST and the Ops Center RST concur that these items should not be tracked on the larger consortium and should be moved to the technical consortium to resolve.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Line Organization comment by COB April 26, and release to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- Request from Japan PMT to coordinate review of two documents, Japan Regs for emergency preparedness, planning and programs, for how they compare to U.S. PAGs. Review comments are requested by Friday, 4/22/11 - task #4892 to NSIR.
- Request from Japan PMT to evaluate "Waste Container" and radionuclide in MOX sludge.
- Second-look the released source term and assess the difference, update if required.

LT Overview and Priorities

- ~~Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government. OIP is working. OIP was advised this document should not be shared. Concerns with any plan to share the SitRep with the Chinese government are: 1) U.S. States have been denied access to this document, and 2) If we share the document with the Chinese government, this precedent could obligate us to honor requests from other international stakeholders as well. As we learned with the NY Times article, we need to safeguard against leaks of OUC information.~~
- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) - U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US -Japan Economic Strategy Institute in Tokyo to help them obtain acceptable shipping containers for radioactive materials. Forwarded the request for Information to Helen Peterson in the Foreign Commercial Services Unit of our Embassy in Japan as requested.

DDDD/42

April 22, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- NRC reviewed and will provide to Japan Site Team Lead detailed comments on the TEPCO Roadmap on 4/22. This assessment incorporated comments received from the Consortium. It will be provided to the Japan Site Team Lead upon clearance from M. Virgilio (briefing scheduled for 1500 today).
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Decision approved to suspend monitoring by Operations Center 24/7 over the weekend and resume watch-standing on Monday, April 25 at 0700. However, staff support must be "on-call" over upcoming weekend to support Japan Site Team as needed. Japan Site Team will be available, but will take a breather, too.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve provide final draft apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Receive Line Organization comment by COB Tuesday April 26, and release document to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- PMT Japan reached back to PMT HQ to raise awareness of the "Waste Container" and "radioactive MOX sludge" causing access problems issues on site. No action at this time.
- On 4/21 Commission TAs inquired if any action is being taken to modify the source term. NARAC has been asked to perform more runs with updated release rates re-created from the accidents.

LT Overview and Priorities

- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) – U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US –Japan Economic Strategy Institute in Tokyo requested to help in obtaining them obtain acceptable shipping containers for radioactive materials. Forwarded the request for information to Helen Peterson, in the Foreign Commercial Services Unit of our US Embassy in Japan as requested has this for action.
- Next Casto call set for 0830 (EDT) Monday 4/25

DDDD/43

April 22, 2011

1500 EDT

One-Pager - Fukushima Daiichi

ET Overview and Priorities

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- NRC reviewed and will provide to Japan Site Team Lead detailed comments on the TEPCO Roadmap on 4/22. This assessment incorporated comments received from the Consortium. It will be provided to the Japan Site Team Lead upon clearance from M. Virgilio (briefing scheduled for 1500 today).
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Decision approved to suspend monitoring by Operations Center 24/7 over the weekend and resume watch-standing on Monday, April 25 at 0700. However, staff support must be "on-call" over upcoming weekend to support Japan Site Team as needed. Japan Site Team will be available, but will take a breather, too.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve provide final draft apparent conflicts over the evening shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Receive Line Organization comment by COB Tuesday April 26, and release document to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- PMT Japan reached back to PMT HQ to raise awareness of the "Waste Container" and "radioactive MOX sludge" causing access problems/issues on site. No action at this time.
- On 4/21 Commission TAs inquired if any action is being taken to modify the source term. NARAC has been asked to perform more runs with updated release rates re-created from the accidents.

LT Overview and Priorities

- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) – U.S. Embassy Japan will send the Request Matrix out for updating.
- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US –Japan Economic Strategy Institute in Tokyo requested to help in obtaining them obtain acceptable shipping containers for radioactive materials. Forwarded the request for information to Helen Peterson, in the Foreign Commercial Services Unit of our US Embassy in Japan as requested has this for action.
- Next Casto call set for 0830 (EDT) Monday 4/25

DDDD/44

April 22, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally unchanged.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1. USAID will continue to support until May 1.
- Coordinated key taskers with NRC Japan Team Lead to ensure priority and clarity of deliverables. NRC detailed comment of TEPCO Roadmap remains top priority with 4/22 draft completion and 4/25 delivery to Ambassador by Site Team Lead.
- Held interactive consortium conference call, discussing and updating 19 open government-to-government actions.
- Deciding on watchstanding or "on-call" over upcoming weekend. Japan Site Team continues to support.
- Providing details to appropriate NRC staff on SharePoint site for document retrieval.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Supported 20:00 Consortium call. Items 33 and 34 were linked to the Task Tracker items. ~~Additional clarity was requested for Item 35 was closed out in the Assessment Rev1.~~ Japan Site Team RST and the Ops Center RST concur that these items should not be tracked on the larger consortium and should be moved to the technical consortium to resolve.
- NRR is reviewing the TEPCO roadmap and will have analysis complete on day shift April 22. NRR will forward draft to NRR management team, the Ops Center, and the Japan Site Team when complete.
- NRR is reviewing JNES assessment of the possible scenarios that resulted in the Unit 4 explosion. Analysis will be provided April 22.
- Received "RST Assessment Rev. 2" from NRR, RST to resolve apparent conflicts over the swing shift and midnight shift and returned to NRR for consortium concurrence by Wednesday, April 27.
- "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment) will be worked by NRR with data from previous two assessment document; target completion by Friday, April 29.

PMT Overview and Priorities

- PMT, via the line organization continues to work on the final "Composite" document (#4969) aligning it with Japan's evacuation instruction, commensurate with a "Travel Advisory." Goal: Receive Line Organization comment by COB Tuesday April 26, and release document to the Federal Family middle of next week.
- Japan Team is actively tracking radiation readings, and investigating agricultural and marine impacts.
- ~~PMT Japan reached back to PMT HQ to raise awareness of the "Waste Container" and "radioactive MOX sludge" causing access problems issues on site. No action at this time.~~
- ~~On 4/21 Commission TAC inquired if any action is being taken to modify the source term. NARAC has been asked to perform more runs with updated release rates re-created from the accidents.~~
- ~~On 4/25, Ned Wright (NSIR) obtained information from a U.S. news report that the Navy is tracking floating debris fields and is going to follow up with Vince Holahan (FSME) to determine if they will monitor for radioactivity.~~
- ~~Also on 4/25, from Ned Wright, information that NOAA was going to put the plume modeling on hold for 2 weeks. Ned contacted NOAA and NOAA said that it would take 2 weeks or more to do the analysis but that it was not on hold. The NOAA contact is going to get back to us.~~

LT Overview and Priorities

- ~~Mark Schaffer (at IAEA) has requested permission to share the NRC SitRep with the Chinese government. OIP is working. OIP was advised this document should not be shared. Concerns with any plan to share the SitRep with the Chinese government are: 1) U.S. States have been denied access to this document, and 2) If we share the document with the Chinese government, this precedent could obligate us to honor requests from other international stakeholders as well. As we learned with the NY Times article, we need to safeguard against leaks of OUC information.~~
- Next Industry Consortium (supplies) call is scheduled for Tuesday, 4/26/11 at 2000 (EDT) – U.S. Embassy Japan will send the Request Matrix out for updating.

DDDD/45

- Working with Japan Site Team to determine approximate number of US Citizens who live within the 12 and 50 mile radius of the Daiichi Nuclear Power Plant.
- Working with EPA to assist in a request from the US –Japan Economic Strategy Institute in Tokyo to help them obtain acceptable shipping containers for radioactive materials. Forwarded the request for information to Helen Peterson in the Foreign Commercial Services Unit of our Embassy in Japan as requested.

~~OFFICIAL USE ONLY~~

April 27, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1.
- NRC reviewed and provided to Japan Site Team Lead the analysis of the adequacy of the TEPCO Roadmap on April 25. This document was also sent to the Consortium for comment by April 27.
- NRC internal review of composite report ongoing with plans to seek interagency review. Finished product due by April 29
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Completed NRC review of the TEPCO Roadmap, which was provided to the site team. NRC received favorable comments from Japanese government. Agreed on comments related to using risk assessment to reduce risk, safety culture, human factors, sharing information and lessons learned, and independent oversight. They are looking to get IAEA and WANO added to future independent reviews. Consortium to provide concurrence by 1600 EDT, Wednesday, April 27.
- No further work will be done on the RST assessment or the "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment).
- Japan Team priorities are now in order of importance: 1. Waste Water Management, 2. Erratic and failing instrumentation, and 3. Decay heat removal.
- Sandia has provided analysis that if U3 has not gone ex-vessel, it won't. Radiation heat rejection off the bottom head will accommodate the decay heat load even if water contact with the lower head cannot be attained by containment flooding.
- Unit 1 RPV injection increased from 5.9 m³/hr to 10 m³/hr. Looking for a change in Rx vessel bottom head temperature as an indication of water level. No data at this time.

PMT Overview and Priorities

- PMT, via the line organization, completed work on the final "Composite" document (item #4969) to provide recommendations for re-entry of US citizens back into the 50 mile evacuation zone and aligning recommendations with Japan's evacuation instructions commensurate with a "Travel Advisory." The document is in final review by NSIR management who plan to conduct a meeting this afternoon with key staff to ensure consensus on the final version of the paper.
- OPA has been contacted to obtain their feedback regarding the content of any press release(s) that may be issued by NRC in conjunction with a Department of State travel advisory related to relaxation of the 50 mi evacuation recommendation.
- M. Virgilio indicated that he would like to send the composite document out to federal agencies, incorporate comments, and finalize the document by the end of this week.

LT Overview and Priorities

- U.S. - Japan Economic Strategy Institute in Tokyo requested help in obtaining acceptable shipping containers for radioactive materials. Helen Peterson in the Foreign Commercial Services Unit U.S. Embassy Japan has this for action.
- Earlier today, April 26, 2011, the Executive Team sent out a message stating future updates of the USNRC Status Update will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). Several people responded stating they were unable to access SharePoint via their Blackberry. The computer folks were contacted and after investigating they said currently you cannot access the SharePoint site from your Blackberry.

DDDD/46

April 27, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally static.
- Headquarters Operations Center transition activities continue. Documented the process for tasking actions to Line Organizations. See Ops Center Transition Plan Document (WebEOC).
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1.
- NRC reviewed and provided to Japan Site Team Lead the analysis of the adequacy of the TEPCO Roadmap on April 25. Consortium commented on April 27. Final product due April 29.
- NRC internal review of composite report ongoing with plans to seek interagency review, finished product due by April 29
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.

RST Overview and Priorities

- Continued monitoring of Units. Conditions at the units were static.
- Completed NRC review of the TEPCO Roadmap, which was provided to the site team. NRC received favorable comments from Japanese government. Agreed on comments related to using risk assessment to reduce risk, safety culture, human factors, sharing information and lessons learned, and independent oversight. They are looking to get IAEA and WANO added to future independent reviews. Consortium to provide concurrence by 1600 EDT, Wednesday, April 27.
- No further work will be done on the RST assessment or the "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment).
- Japan Team priorities are now in order of importance: 1. Waste Water Management, 2. Erratic and failing instrumentation, and 3. Decay heat removal.
- Sandia has provided analysis that if U3 has not gone ex-vessel, it won't. Radiation heat rejection off the bottom head will accommodate the decay heat load even if water contact with the lower head cannot be attained by containment flooding.
- Unit 1 RPV injection increased from 5.9 m³/hr to 10 m³/hr. Looking for a change in Rx vessel bottom head temperature as an indication of water level. No data at this time.

PMT Overview and Priorities

- ~~PMT, via the line organization, completed work on the final The "Composite" document (item #4969) which provides recommendations for re-entry of US citizens back into the 50 mile evacuation zone and aligning recommendations with Japan's evacuation instructions commensurate with a "Travel Advisory." The document is in final review by NSIR management who plan to conduct a meeting this afternoon with key staff to ensure consensus on the final version of the paper.~~
- OPA has been contacted to obtain their feedback regarding the content of any press release(s) that may be issued by NRC in conjunction with a Department of State travel advisory related to relaxation of the 50 mi evacuation recommendation.
- M. Virgilio indicated that he would like to send the composite document out to federal agencies, incorporate comments, and finalize the document by the end of this week.
- Prior to the accident at Fukushima Daiichi, approximately 1200 U.S. citizens were known to have lived within 50 miles of the plant but outside of the 20 km evacuation zone. This information was provided by the consulate to the Japan PMT (Heather Gepford).
- Bullet train service between Tokyo and Sendai resumes within the next week. Also, the highway route from Tokyo to Sendai runs parallel to the bullet train. Both routes contain segments that are within the 50 mile zone but outside 30 km. DOE has been performing rad readings of the highway route and will be providing the data to the Japan PMT. Once data is available, we will be requested to provide a recommendation for U.S. citizens who would like to use the highway and/or train. Without these options, it takes over 10 hours to travel between these destinations.

LT Overview and Priorities

DDDD/47

- U.S. - Japan Economic Strategy Institute in Tokyo requested help in obtaining acceptable shipping containers for radioactive materials. Helen Peterson in the Foreign Commercial Services Unit U.S. Embassy Japan has this for action.
- Earlier today, April 26, 2011, the Executive Team sent out a message stating future updates of the USNRC Status Update will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). Several people responded stating they were unable to access SharePoint via their Blackberry. The computer folks were contacted and after investigating they said currently you cannot access the SharePoint site from your Blackberry.

~~OFFICIAL USE ONLY~~

USNRC Emergency Operations Center Status Update

April 28, 2011

**Earthquake / Tsunami Status Update
Compiled by Liaison Coordinator**

**This report includes NRC's current understanding of the ongoing situation in Japan.
Historical and background information can be found in past reports.**

NRC's Top Priorities

- 1) Continued assessment of plant and radiological conditions and protective action recommendations.
 - 2) Providing technical assistance to the US Ambassador in Japan and the Japanese Government.
 - 3) Coordination with other US Departments and Agencies, the Institute of Nuclear Power Operations (INPO), Bechtel, General Electric Hitachi (GEH), Tokyo Electric Power Company (TEPCO), and the Japanese military.
-

Status

At 0946 EST, March 11, 2011, the NRC entered Monitoring Mode, and the agency continues to monitor the unfolding events in Japan. In that the situation is not yet stable, NRC continues its 24 hour support in headquarters and a fully-engaged site team in Japan. During the week of April 11th, NRC increased the size and adjusted the skill set of its site team to better support the work activities in Japan. On April 11, NRC transitioned a great portion of its response support efforts to its line organizations. A core team of managers and experts will continue to staff the Headquarters Operations Center on a 24 hour basis.

Press releases related to the situation in Japan can be found online at:
<http://www.nrc.gov/reading-rm/doc-collections/news/2011/>.

Japan has scheduled a national stand-down on Friday April 29th, and Tuesday through Thursday, May 3rd, 4th, and 5th 2011 inclusive.

NISA and TEPCO have started holding joint press conferences to improve communications with the public. The first press conference occurred April 26 and lasted 3 hours. More joint press conferences are scheduled for the week.

The current protective action recommendation for US citizens residing within 50 miles (80 km) of the Fukushima Daiichi site is to evacuate. The NRC continues to evaluate this recommendation. According to media sources, Japan decided Thursday April 21, 2011 to prohibit residents from staying within a 20-kilometer radius of Fukushima NPP. People will only be allowed to enter the zone for up to two hours to collect belongings under government supervision. No member of the public would be allowed within 3 km of the site. The government added some towns outside the 20-km radius to the list of areas covered by its "no-entry" directive (Kyodo New, 22 April.)(0600 4/22 SITREP)

As reported by Kyodo News early Thursday 21 April, TEPCO announced highly radioactive water that leaked into the Pacific Ocean from the Daiichi nuclear plant in early April contained an estimated 5,000 terabecquerels of radioactive substances – 20,000 times the annual allowable limit for the plant – with TEPCO reporting total leakage amounting to 520 tons. TEPCO estimates the leakage to have lasted for six days through April 6.

The US DOE and the US Environmental Protection Agency are the Federal communicators for questions regarding possible domestic impacts from the events in Japan and on domestic monitoring.

The Commission established a senior-level agency task force to conduct a systematic review of NRC processes and regulations with specific near-term and long-term objectives.

Status of NRC Licensee and Agreement State Facilities

Air sample and standing water sample results from US nuclear plant licensees have been entered into a password protected database established by the Nuclear Energy Institute (NEI). NRC and Federal partners have access to the plant data.

Industry Consortium / Contractor Activities

The industry consortium is composed of government and industry representatives working to respond to Government of Japan (GoJ) requests for material and assistance. Consortium calls are typically held daily on technical issues at 11:00 EDT and are held at 2000 EDT on days agreed to by the consortium for topics including supply needs by GoJ.

Current Understanding of Japanese Facilities

(This information is compiled from the NRC in-country team, TEPCO press releases, Japanese Nuclear and Industrial Safety Agency (NISA) press releases, Japan Atomic Industrial Forum (JAIF) compiled data and assessments, IAEA information releases, Federation of Electric Power Companies of Japan, World Association of Nuclear Operators, DOE and others.)

Fukushima Daiichi

IAEA confirms a no-fly zone out to 30 km around the Fukushima Daiichi plant. The Japanese government announced that it is revising the emergency plans for Fukushima Daiichi to establish potential evacuation zones in case of another emergency. The Chief Cabinet Secretary indicated this is being done because plant conditions are not yet stable.

On April 12, 2011, NISA raised the rating for the events at the Fukushima Daiichi site on the International Nuclear and Radiological Event Scale (INES) from 5, "Accident with Wider Consequences," to 7, "Major Accident," citing calculations by both NISA and the Nuclear Safety Commission of Japan (NSC) of radioactive materials released from the Fukushima Daiichi reactors. This new provisional rating considers the accidents that occurred at Units 1, 2, and 3 as a single event on INES. NISA notes that while an INES rating of 7 is the same as that of the

Chernobyl accident, their current estimated amount of radioactive materials released is approximately 10% of the amount from the Chernobyl accident. (Source: NISA and IAEA 4/12)

Groundwater sampling near Units 1 & 2 showed increased radiation levels 6-38 times greater than previous measurements, based on isotope analysis. Groundwater flow leads to the ocean (Source: Site Team 4/15). TEPCO completed pumping out low-level liquid radwaste from the common-area radwaste building and applied sealant. TEPCO is transferring highly radioactive water from the Unit 2 turbine building basement to the radwaste facility; expecting 26 days to complete. (Source: Site Team 4/19).

TEPCO expects to have a tanker barge available by mid-May that will be able to hold 27,000 Tons of liquid radwaste, giving them a total of 60,400 Tons of liquid radwaste storage capacity. TEPCO estimates that a total of 50,000 Tons of highly contaminated liquid radwaste will have been generated onsite by the end of May. (Source: Site Team 4/16).

On April 17, TEPCO released a document titled "*Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station.*" This document sets out a two-phase action plan to bring "the reactors and spent fuel pools to a stable cooling condition and [mitigate] the release of radioactive materials" This plan envisions actions over the next six to nine months. (Source: TEPCO 4/17). Staff is currently reviewing the document and seeking Consortium input.

TEPCO is considering adding boric acid to the core cooling water.

TEPCO has concerns regarding flooding up the drywell and prefers the existing approach of feed and bleed for core cooling, with some leakage into the drywell. TEPCO's concerns involve the inability to measure the exact water level and disposal of the contaminated water that may leak out of the reactor building.

TEPCO is considering: 1) entombment of the Unit 2 reactor building to stop leakage that is believed to be emanating from the suppression pool, 2) trying to ascertain whether the water in the Unit 2 turbine building basement may be coming from another unit, 3) requesting US assistance and expertise with processing high level radwaste, and 4) inerting Unit 3 drywell, however, it may be difficult due to high rad levels and debris in the Unit 3 reactor building.

TEPCO is experiencing challenges in accessing portions of the facility due to highly radioactive sludge and is exploring methods to address the problem. (Source: TEPCO)

STATUS as of 1200 EDT, April 27, 2011 (0100 Japan, April 28)

Unit 1 – (NRC Priority: 1)

Core Status: Estimated 55% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV level ½ TAF (NISA 4/8). The volume of sea water injected to cool the core, when fresh water was not available, has left enough salt to fill the lower plenum to the core plate (Source: GEH, US Industry). Vessel temperatures 98.5°C at bottom drain, 107.3°C at FW nozzle (Source: TEPCO 4/28). RPV pressure (Ch A: 66 psig, Ch B: 171 psig) (Source: DOE 4/27).

Core Cooling: Fresh water injection via temporary electrical pump to FW line at 44.0 gpm (Source: Site Team 4/28). Recirculation pump seals have likely failed (Source: GEH). Stuck open SRV (Source: Site Team, confirmed by TEPCO 4/7). Began injecting nitrogen (N₂) to drywell at 0130 Japan time on April 7 (Source: IAEA, 4/7).

Primary Containment: Damage suspected, slow leakage, DW pressure decreased to 10 psig, torus pressure at 10 psig and slowly increasing from N₂ injection (Source: IAEA 4/18). Leakage rate estimated at 3m³/hr

Secondary Containment: Severely damaged (hydrogen explosion)

Spent Fuel Pool: Temperature is at 20°C (Source: IAEA 4/27, uncertain, overhead thermography). Periodic freshwater spray using concrete pump truck (Source: DOE 4/3). SFP has 292 assemblies with last transfer of 64 assemblies from reactor to SFP in March 2010 (Source: GEH 4/2).

Rad Levels: DW: 6830 R/hr (Source: NISA 4/8), Reported instrument failure (Source: INPO 4/8), Torus: 1080 R/hr (Source: TEPCO 4/12), Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF).

Power: On external power (Source: NISA); equipment testing in progress (Source: JAIF, NISA, TEPCO).

Actions: TEPCO increased flow to the RPV from 5.9 m³/hr to 10.0 m³/hr for a period of 6 hours (complete at app. 0300 4/27/2011) to raise the primary containment water level from an estimated 2 feet below RPV lower head to above lower RPV lower head. TEPCO reported that the RPV lower head temperatures decreased to less than 100 °C (4/28/2011). Robotics was unsuccessful at locating primary containment leakage paths. TEPCO will continue the robotics leak detection activities with the higher water level in the primary containment. (Source: Site Team 4/27)

Unit 2 – (NRC Priority: 2)

Core Status: Estimated 35% damage (Source: TEPCO), fuel partially or fully exposed (Source: JAIF, NISA, TEPCO). RPV Level A -59.0" Level B -79.0" below TAF (DOE 4/27) Bottom head temperature no data, feed water nozzle temperature 120.4°C (Source: IAEA 4/27). RPV pressure: Ch A: 2.3 psig, Ch D: 4.0 psig (Source: DOE 4/27). Stabilized at atmospheric pressure since 3/18/11 (Source: IAEA 4/9).

Core Cooling: Fresh water injecting at 30.8 gpm (Source: IAEA 4/27).

Primary Containment: Damage suspected (Source: JAIF, NISA, TEPCO). DW Pressure: 0 psig (Source: IAEA 4/15).

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO), blowout panels removed from side of reactor building to reduce hydrogen buildup (Source: visual).

Spent Fuel Pool: Full fresh water injection continuing (Source: IAEA 4/5), fuel pool temperature 70°C (Source: DOE 4/27). 135 Tons of fresh water added 4/25 (Source: IAEA 4/27).

Actions: Refilled SFP to overflow (Source: Site Team 4/27)

Rad Levels: DW: 2810 R/hr (Source: TEPCO 4/12); Torus 68.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4 mR/hr at west gate (very slight trend downward) (Source: JAIF).

Power: On offsite power (Source: NISA 4/3)

Unit 3 – (NRC Priority: 3)

Core Status: Estimated 30% damage (Source: TEPCO), Bottom head temperature 110.7°C, FW nozzle temperature: 72.0°C (Source: IAEA 4/27). RPV pressure Ch A: 0 psig, Ch B: 0 psig (Source: IAEA 4/18). RPV level A -73", level B -86" below TAF (Source: IAEA 4/27). Stabilized at atmospheric pressure since 3/22/11 (Source: IAEA 4/9).

Core Cooling: Freshwater injection via fire line at 30.8 gpm via temporary electrical pump (Source: IAEA 4/25). Recirculation pump seals have likely failed (Source: GEH).

Primary Containment: Damage suspected. Drywell Pressure: 0 psig and Torus Pressure 9 psig (Source: IAEA 4/18). Nitrogen injection delayed due to problems accessing equipment (Source: NHK).

Secondary Containment: Damaged (Source: JAIF, NISA, TEPCO)

Spent Fuel Pool: Low water level. Temperature 47.0°C estimated (Source: IAEA 4/27), Fresh water sprayed via concrete pump on 4/8 (Source: TEPCO 4/9). ~30 Tons added on 4/18 (site team 4/20). ~47.5 Tons added on 4/26 (IAEA 4/27)

Rad Levels: DW: 1740 R/hr, Torus: 67.1 R/hr (Source: TEPCO 4/12); Outside site at plant gate(s): 4.0 mR/hr at west gate (very slight trend downward) (Source: JAIF); 100 R/hr debris outside Rx building (covered).

Power: On offsite power (Source: NISA 4/3)

Unit 4 – (NRC Priority: 4)

Core Status: Offloaded 105 days at time of accident (Source: JAIF, NISA, TEPCO).

Core Cooling: Not necessary (Source: JAIF, NISA, TEPCO).

Primary Containment: Not applicable (Source: JAIF, NISA, TEPCO).

Secondary Containment: Severely damaged from hydrogen explosion (Source: JAIF, NISA, TEPCO).

Spent Fuel Pool: Temperature 83°C (Source: TEPCO 4/26). Freshwater added via concrete pump 4/9, additional spraying as needed (Source: TEPCO 4/9). 195 Tons fresh water added 4/12 (Source: IAEA 4/14). Fresh water spraying restarted by concrete pump truck on 4/15 (Source: IAEA 4/16). 140 Tons fresh water added on 4/23, 130 Tons added 4/26 (IAEA 4/27) TEPCO acknowledges there is a leak in the SFP (Source: TEPCO, unconfirmed). Water level ~2.5m above top of fuel (Source: TEPCO, uncertain). The extent of fuel damage, if any, is uncertain. Analyzed isotope levels from the pool may not be indicative of the actual state of fuel in the pool and may be more indicative of the isotopes from the water sprayed into the pool. Further sampling has been suggested by the NRC Site Team, but due to the complexity of obtaining samples from the pool, TEPCO has not planned further sampling.

Actions: Installed SFP T/C level indication stalk (Source: Site Team 4/27)

TEPCO has added 140-210 tons of water through April 26, 2011, resultant level 10 to 40 centimeters lower than expected. Surmise water leaking from spent fuel pool (Source: TEPCO, 4/27)

Plans to install concrete pillars to support the fuel pool by around July to increase its earthquake resistance (Source: TEPCO 4/27)

Power: On offsite AC power (Source: DOE 4/3)

Unit 5 – (NRC Priority: 5)

Unit 5 remains in stable cold shutdown, with offsite power.

Unit 6 – (NRC Priority: 6)

Unit 6 remains in stable cold shutdown, with offsite power.

NRC priorities are based on analyses by the Reactor Safety Team. Unit 1 is priority 1 based on the belief that primary containment functionality, though degraded, can still be preserved if the responders take actions to inject to the RPV and primary containment. Unit 2 is priority 2 because of the apparent damage to primary containment and the other barriers to release. This damage requires continued attention to cool the core and provide water to the primary containment to minimize potential for release. Unit 3 is priority 3 because primary containment may be nominally functional but continued attention is required to pursue core cooling and injection.

Other Plants

April 28, 2011

2300 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- Plant and fuel pool conditions are generally static. See RST Overview below for specific changes.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1.
- NRC reviewed and provided to Japan Site Team Lead the analysis of the adequacy of the TEPCO Roadmap on April 25. Consortium commented on April 27. Final internal review ongoing. Product due April 29.
- NRC internal review of composite report (Updated Travel Advisory) is ongoing (NSIR lead) with plans to seek interagency review. Rev 14 received. Finished product due by April 29.
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.
- In light of the 0930 Commission Meeting (Thursday 4/28), the 1000 TAs & CAs Briefing with the ET has been rescheduled for 1300 (Thursday, 4/28).

RST Overview and Priorities

- Continued monitoring of Units. Conditions for Units 2 & 3 were static. With the higher injection of 10 m³/hr for Unit 1, RPV bottom head temperature has dropped from 110.5C to 98.5C and drywell pressure has dropped from 7.8 psig to 3.4 psig. The Site Team stated that TEPCO may reduce injection flow to prevent drywell pressure from going subatmospheric.
- TEPCO changed their #4 spent fuel pool assessment from yesterday and now indicated there is no leak on #4 spent fuel pool. GEH indicated that #4 spent fuel pool appears to be intact below the fuel transfer canal gate.
- The evaluation of the TEPCO Roadmap, Revision 5, has been completed by NRR and sent to the Industry Consortium for comments by tomorrow at 2:00pm. It is to be issued by the end of the day tomorrow.

PMT Overview and Priorities

- The "Composite" document (Rev 15) providing recommendations for re-entry of US citizens into the 50 mile evacuation was received, and has gone to M. Virgilio, who is waiting for feedback from Chairman, and then the federal family and finalize the document by the end of this week (04-29-11).
- OPA was contacted to obtain feedback regarding press release(s) that may be issued by NRC in conjunction with a Department of State travel advisory related to any US evacuation relaxation.
- Prior to the accident at Fukushima Daiichi, approximately 1200 U.S. citizens were identified to have lived within 50 miles of the plant, but outside of the 20 km evacuation zone. This information was provided by the consulate to the Japan PMT (Heather Gepford).
- Bullet train service between Tokyo and Sendai resumes within the next week. The highway route from Tokyo to Sendai runs parallel to the bullet train. Both routes contain segments that are within the 50 mile zone but outside 30 km. DOE performed radiation measurements of the highway route and will provide the data to the Japan PMT. We will then be requested to provide a recommendation for U.S. citizens regarding highway and/or train use.
- PMT is resuming daily conference call with PMT Japan at 6:30pm EST.

LT Overview and Priorities

- U.S. - Japan Economic Strategy Institute in Tokyo requested help in obtaining acceptable shipping containers for radioactive materials. Helen Peterson in the Foreign Commercial Services Unit U.S. Embassy Japan has this for action.
- All USNRC Status Updates now accessible on the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). You cannot access the SharePoint site from your Blackberry at this time.

DDDD 149

April 28, 2011

0700 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- ET turnover: WebEOC turnover list, one-pager, list of major documents, tasker list, ET Log Book.
- One-Pagers are no longer to be emailed out - ONLY loaded to the Japan SharePoint.
- Plant and fuel pool conditions are generally static. See RST Overview for specific changes.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1.
- NRC reviewed and provided to Japan Site Team Lead the analysis of the adequacy of the TEPCO Roadmap on April 25. Consortium commented on April 27. Final internal review ongoing. Product due April 29.
- NRC internal review of composite report (Updated Travel Advisory) ongoing (NSIR lead) with plans to seek interagency review. Rev 14 received. Finished product due by April 29.
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.
- In light of the 0930 Commission Meeting (Thursday 4/28), the 1000 TAs & CAs Briefing with the ET has been rescheduled for 1300 (Thursday, 4/28).
- Recurring Daily Actions and Calls updated: removed PMT from 0300 site team call; Uploaded file to SharePoint's "HOC Watchbill" folder.

RST Overview and Priorities

- Continued monitoring of Units. Conditions for Units 2 & 3 were static.
- Completed NRC review of the TEPCO Roadmap, which was provided to the site team. NRC received favorable comments from Japanese government. Agreed on comments related to using risk assessment to reduce risk, safety culture, human factors, sharing information and lessons learned, and independent oversight. They are looking to get IAEA and WANO added to future independent reviews. Consortium provided comments by 1800 EDT, Wednesday, April 27.
- No further work will be done on the RST assessment or the "Interim Comprehensive Assessment" (Global Assessment/Interim Safety Assessment).
- Japan Team priorities are now in order of importance: 1. Waste Water Management, 2. Erratic and failing instrumentation, and 3. Decay heat removal.
- Sandia has provided analysis that if U3 has not gone ex-vessel, it won't. Radiation heat rejection off the bottom head will accommodate the decay heat load even if water contact with the lower head cannot be attained by containment flooding.
- Unit 1 RPV injection increased from 5.9 m³/hr to 10 m³/hr. Looking for a change in Rx vessel bottom head temperature as an indication of water level. No data at this time.
- As a result of their mass balance calculations, TEPCO indicated publicly that a potential leak in spent fuel pool Unit 4 may exist.

PMT Overview and Priorities

- The "Composite" document (item #4969) which provides recommendations for re-entry of US citizens into the 50 mile evacuation zone has been reviewed by NSIR management, and is awaiting final word from NSIR to be sent to M. Virgilio and then the federal family.
- OPA has been contacted to obtain feedback regarding content of any press release(s) that may be issued by NRC in conjunction with a Department of State travel advisory related to relaxation of the 50 mi evacuation recommendation.
- M. Virgilio indicated that he would like to send the composite document out to federal agencies, incorporate comments, and finalize the document by the end of this week (04-29-11).
- Prior to the accident at Fukushima Daiichi, approximately 1200 U.S. citizens were known to have lived within 50 miles of the plant but outside of the 20 km evacuation zone. This information was provided by the consulate to the Japan PMT (Heather Gepford).
- Bullet train service between Tokyo and Sendai resumes within the next week. Also, the highway route from Tokyo to Sendai runs parallel to the bullet train. Both routes contain segments that are within the 50 mile zone but outside 30 km. DOE has been performing rad readings of the highway route and will be providing the data to the Japan PMT. Once data is available, we will be

DDDD/50

requested to provide a recommendation for U.S. citizens who would like to use the highway and/or train. Without these options, it takes over 10 hours to travel between these destinations.

- PMT is resuming daily conference call with PMT Japan at 6:30pm EST.

LT Overview and Priorities

- U.S. - Japan Economic Strategy Institute in Tokyo requested help in obtaining acceptable shipping containers for radioactive materials. Helen Peterson in the Foreign Commercial Services Unit U.S. Embassy Japan has this for action.
- Earlier today, April 26, 2011, the Executive Team sent out a message stating future updates of the USNRC Status Update will be loaded to the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). Several people responded stating they were unable to access SharePoint via their Blackberry. The computer folks were contacted and after investigating they said currently you cannot access the SharePoint site from your Blackberry.
- The TAs and CAs 1000 briefing call needs to be rescheduled due to the Japan/SBO Commission meeting. The call is tentatively moved to 1300 on Thursday.

~~OFFICIAL USE ONLY~~

April 29, 2011

1500 EDT

One-Pager - Fukushima Daiichi**ET Overview and Priorities**

- Plant and fuel pool conditions are generally static. See RST Overview below for specific changes.
- USAID will transition support for NRC Japan Site Team to NRC (OCFO/OIP) on May 1.
- TEPCO Roadmap Review (Rev 5) provided to industry consortium for comment (due 4/29/11).
- Composite report (Updated Travel Advisory): Current revision is with the Chairman for review. Sendai corridor (highway and rail) opening currently tied to composite release. Product anticipated to be distributed to interagency 4/29/11 1200 EDT. See PMT overview below for specifics.
- Site Team priorities: (1) water management; (2) erratic instrumentation behavior; and (3) decay heat removal.

RST Overview and Priorities

- Continued monitoring of Units. Conditions for Units 2 & 3 were static. With the higher injection of 10 m³/hr for Unit 1, RPV bottom head temperature has dropped from 110.5C to 98.5C and drywell pressure has dropped from 7.8 psig to 3.4 psig. The Site Team stated that TEPCO may reduce injection flow to prevent drywell pressure from going sub-atmospheric.
- TEPCO changed their #4 spent fuel pool assessment from yesterday and now indicated there is no leak on #4 spent fuel pool. GEH indicated that #4 spent fuel pool appears to be intact below the fuel transfer canal gate.
- The evaluation of the TEPCO Roadmap, Revision 5, has been completed by NRR and sent to the Industry Consortium for comments by 4/29/11 at 1400 EDT. It is to be issued by the end of the day 4/29/11.
- NRR is currently working on risk assessments of units 1-3, and unit 4 spent fuel pool. To be delivered to Jeff Mitman (Site Team) by 5/1/11 1800 EDT.
- NRR has been tasked with Mass Balance to support determination of turbine building inleakage on unit 2. Due by COB 5/2/11.

PMT Overview and Priorities

- The "Composite" document (Rev 15) providing recommendations for re-entry of US citizens into the 50 mile evacuation was sent by M. Virgilio to the Chairman, who will then provide to the federal family by the end of this week (04/29/11) to the interagency on 4/29/11. NRC is expecting comments by COB on Monday and will then coordinate comments and transmit to the Japan Team. Embassy ultimately decided to wait for this document rather than open Sendai corridor separately.
- OPA was contacted to obtain feedback regarding press release(s) that may be issued by NRC in conjunction with a Department of State travel advisory related to any US evacuation relaxation.
- Prior to the accident at Fukushima Daiichi, approximately 1200 U.S. citizens were identified to have lived within 50 miles of the plant, but outside of the 20 km evacuation zone. This information was provided by the consulate to the Japan PMT (Heather Gepford).
- Bullet train service between Tokyo and Sendai resumes within the next week. There is also a highway route from Tokyo to Sendai that runs parallel to the bullet train. Both routes contain segments that are within the 50 mile zone but outside 30 km zone. DOE performed radiation measurements of the highway route and provided the data to the Japan PMT. HQ PMT has provided input to the Japan Team who will be providing a final recommendation to the US Ambassador to Japan.
- PMT is resuming daily conference call with PMT Japan at 6:30pm EST.
- As per the Japan PMT input, the HQ PMT is recommending not to staff over the weekend but to remain on-call.

LT Overview and Priorities

- All USNRC Status Updates now accessible on the Japan SharePoint page at <http://nsir-ops.nrc.gov/>. You may subscribe to email alerts through the SharePoint page (instructions in 2nd attachment). You cannot access the SharePoint site from your Blackberry at this time.

DDDD/ST

- Next Industry Consortium (supplies) call is scheduled for Monday, 5/02/11 at 2000 – U.S. Embassy Japan has the lead for updating the Request Matrix.

~~OFFICIAL USE ONLY~~